A COMPARATIVE STUDY TO ASSESS THE EFFECTIVENESS OF CARTOON ANIMATION, MUSIC THERAPY & KALEIDOSCOPE ON PAIN REDUCTION DURING SURGICAL DRESSING AMONG CHILDREN AGED 4-12 AT PSG HOSPITALS, COIMBATORE

By

P.MUTHUGURUVU

A dissertation submitted to **The Tamil Nadu Dr. M G R Medical University,**

Chennai,

In partial fulfillment of requirement of the degree of

Master of Science in Nursing

Branch II Child Health Nursing

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CERTIFICATE

Certified that **"A COMPARATIVE STUDY TO ASSESS THE EFFECTIVENESS OF CARTOON ANIMATION, MUSIC THERAPY & KALEIDOSCOPE ON PAIN REDUCTION DURING SURGICAL DRESSING AMONG CHILDREN AGED 4-12 AT PSG HOSPITALS, COIMBATORE"** is the bonafide work of **MRS.P.MUTHUGURUVU,** PSG College of Nursing, Coimbatore, submitted in partial fulfillment of requirement for the degree of Master of Science in Nursing to **The Tamil Nadu Dr. M G R Medical University, Chennai.**

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S.NO	ABBREVIATION
1	**ANOVA :** Analysis of variance
2	**f-** Frequency
3	**F**- ANOVA value
4	**FLACC-**Face, Legs, Activity, Cry, Consolability.
5	**FPS-R-**Face pain scale-Revised
6	**M ± SD :** Mean ± standard deviation
7	**n**- Number of samples
8	**NABH-** National Accredited Board for Hospital and Health Care Providers
9	**NSR-**Numerical Rating Scale
10	**r-**Correlation coefficient
11	**VRS-** Verbal Rating Scale

ABSTRACT

A comparative study to assess the effectiveness of cartoon animation, music therapy & kaleidoscope on pain reduction during surgical dressing among children aged 4-12 at PSG hospitals, Coimbatore

Background of the study: Experience of pain at dressing change can raise a child's anxiety levels about subsequent dressing changes. In addition to the psychological effects, stress and pain can actually impair the healing process, resulting in longer healing times and greater costs.

Objectives of the study: The objective of the study is to assess the effectiveness of cartoon animation, music therapy & kaleidoscope in reduction of pain during and after surgical dressing and find the association between the level of pain and the selected demographic variables.

Methodology: Time series design with three groups. Sixty (60) children were selected using purposive sampling technique and were randomly assigned to intervention to three groups using lottery method. Interventions were given to the children during and after surgical dressing. Assessment of pain related to surgical dressing was assessed by investigator using FLACC scale, parents using Wong Baker pain scale and the children using Numerical pain scale to grade the level of pain experienced.

Major findings of the study: Among 60 children in the study, under the stage of surgery 35(58%) undergone single stage surgery & 26(43.33%) of children had genitourinary surgeries. The assessment of pain found that the cartoon animation was very effective in reducing pain in children both during and after surgical dressing ($M \pm SD = 1.18 \pm 0.5$, $F = 8.48$ at $p < 0.05$), ($M \pm SD = 1.17 \pm 0.9$, $F = 12.2$ at $p < 0.05$) in comparison with music therapy and kaleidoscope. There was a significant association found between the age, developmental age and stage of surgery with level of pain before surgical dressing ($\chi^2 = 6.124, 9.29, 5.84$). There was a positive correlation of pain perception by the investigator, parents and children.

Conclusion: The study findings shows that the cartoon animation was very effective in reducing pain in children during surgical dressing in comparison with music therapy and kaleidoscope.

Key words: children; cartoon animation; music therapy; kaleidoscope; distraction; pain; surgical dressing.

CHAPTER I

INTRODUCTION

1.1 Background of the study:

The word pain is derived from the latin word 'poena' which means punishment, which in turn derived from the Sanskrit root 'pu' meaning puification. The International Association for the Study of Pain defines, "pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, are described in terms of such damage". The International Association for the study of pain further states that, "pain is subjective. Each individual learns the application of the word through experiences related to in early life." This definition emphasizes the individuality of each person's pain response and the importance of pain experiences, especially those in early life, in shaping that response. Thus, a child experience during painful medical procedures likely plays a significant role in shaping that individuals pain response to future events**.(IASP, 2002)**

Many different things cause pain , injuries are the most common cause of pain in children. Medical tests and treatments can hurt. Surgery as well as some diseases such as sickle-cell disease, cancer etc. can cause pain. Children often have headaches, tummy pains/stomach aches, or leg pains that come and go. The pain may be a sign of a serious disease or may be painful but harmless. Stress can also trigger headaches and stomach aches. However, not all headaches and tummy pains are from stress. Pain that comes from stress is real and hurts just as much as other pain**. (McGrathet.al., 2003)**

Pain is now well accepted by neuroscientists and pain specialists that the nervous system is sufficiently developed to process nociception before birth, and consequently, children must be assumed to experience pain from birth onward. Indeed, due to a more robust inflammatory response and the lack of a central inhibitory influence, infants and young children actually may experience a greater neural response, i.e., more pain sensation and pain-related distress, following a noxious stimulus than do adults. The impact of painful experience on the young nervous

system is so significant that long-term effects can occur, including a lowered pain tolerance for months after a pain-producing event. **(AMA, June, 2013)**

Pain Assessment (The American Academy of paediatrics):

The Joint Commission standards include mandatory pain assessments for all hospital patients. Pain is, by nature, a subjective experience and is influenced by social, psychological, and experiential factors. For example, patients who experience chronic pain may not report the same pain level or exhibit the same facial cues and vocalizations as those who are new to the pain experience. Pain assessment, which is obviously the first step toward appropriate treatment, can, therefore, be more complex than just obtaining a single pain score; it is also essential to pay attention to changes in pain scores in response to treatment**. (The Joint Commission standards, 2005)**

The current clinical standard for pain assessment is a self-report scale. Simple numerical scales, such as verbally grading pain from 0 to 10, are often used in adults; although there is evidence that this technique may be accurate in older children with moderate to severe pain, it may be less accurate for those with abdominal pain. Several well-validated scales exist for children as young as 3 years to report their own pain level. The revised FACES pain scale, the Wong-Baker Faces scale, and the 10-cm Visual Analog Scale have been used successfully in many Emergency Dept.'s caring for children**. (The Joint Commission standards, 2005)**

Other dimensions can be added to the visual analog scale, such as height, width, and color, and are valid methods for assessment of acute pain in children. For those who are unable to use self-report scales, behavioural scales can be combined with an evaluation of the patient's history and physical findings to assess the level of a child's pain**. (The Joint Commission standards, 2005)**

Pain in a neonate can be evaluated using the Neonatal Infant Pain Scale, and pain in infants, young children, and those with cognitive impairment can be assessed using the FLACC (Face, Legs, Activity, Crying and Consolability) scale. It must be noted that few, if any, scales have been validated in the pre-hospital setting**. (The Joint Commission standards, 2005)**

Non-pharmacological pain management

Incorporation of child life specialists and others trained in non-pharmacologic stress reduction can alleviate the anxiety and perceived pain related to pediatric procedures. Family presence during painful procedures can be a viable and useful practice in the acute care setting. Other non-pharmacologic measures such as diversion, controlled breathing, imagination, comforting touch etc can also be used to reduce the pain perception in children. **(The Royal Children's Hospital Protocol, Melbourne, 2002)**

According to **Whaley and Wong's, (2008)** schooler children get easily distracted even though they have different temperaments. In order to decrease the painful experience during procedures diversional activities in the form of play, game, radio, video-cassette recorder and television can be used. Cartoon movies are successful diversion for a child who is hospitalized.

McLaren and Cohen, (2005) found a cartoon movie decreased venipuncture distress more than an interactive toy. TV watching was less painful ($P<0.05$) than control or procedures performed during active distraction.

B.Ricci, Morgese, G.Buonocore (2006) reported video games distract the young patient's attention away from the pain that accompanies dressing changes.

A related study using a specialized video game system proved that the programe was an effective means for diverting the attention of children away from pain on burns dressing**. (Mark DW and Brendak W, 2009)**.

A simple, easily applicable, and low-cost distraction intervention such as presenting cartoon movies seems to be sufficiently powerful to measurably reduce burned children's distress during dressing changes. Findings of the study shows cartoon movie (mean effect was 0.33 ± 0.17) is more effective distractive for behavioral distress on wound debridement dressing change. **(Carsok, 2002)**

1.2 Need for the study

Diversional therapy has been used successfully as an intervention to decrease children's pain and behavioral responses during painful procedures. However, diversional therapy protocols differ in various ways, most notably in the attention required by the participant to engage in the distraction. The theoretical explanation for the effectiveness of distraction lies in its ability to divert attention away from the painful stimulus. McCaul and Malott (1984) hypothese that the brain has a limited capacity to focus attention on stimuli. Therefore, using up attentional resources while engaging in a distracting task leaves little capacity for attending to painful stimuli. The Gate Control Theory of Pain proposed by Melzack and Wall (1965, 1995) offers a physiological explanation of the effectiveness of attention diversion. In brief, the Gate Control Theory explains that pain perception can be affected by factors other than the stimulus itself. This theory suggests that pain perception is controlled by a neural mechanism or "gate" in the spinal cord. Depending on how the mechanism is activated, the gate can be opened or closed. When the gate is open, 8 pain signals are transmitted to the brain, and when the gate is closed, they are not. Melzack originally proposed this theory to explain why physically stimulating an area can lead to reduced pain perception, but later modified his theory to suggest that cognitive factors can also open or close the gate. Cognitive and behavioral processes, such as distraction, Lamaze, and self-hypnosis, cartoons can close the gate to subsequent pain perception by diverting attention away from the painful stimulus and toward focal points. **(Brenner &Sitharth,2007)**

The common surgical conditions among children are colostomy, appendicitis, hernia, extropy of bladder, agumentation, circumcision and hypospadias etc. at which the children usually don't have capacity to tolerate pain, hence to divert their mind or relief attention from pain, we use diversion methods such as cartoon animation movies, video games, music therapy, play, etc.

The incidence of Hirschsprung's disease (HD) is estimated to be 1 in 5000 live birth. Approximately one-third of children with acute appendicitis. 20% children reported in Inguinal Hernia. Exstrophy of bladder is estimated to be between 1 in

10,000 and 1 in 50,000 live birth. The incidence of Hypospadias is about 1:300 boys,15% of 6 years old child suffers from bladder sphincter dysfunction**. (Hoebeke, 2002)**

Experience of pain at dressing change can rais a patient's anxiety levels about subsequent dressing changes, which can then lead to the patient experiencing a heightened sense of pain when the dressing change is performed, thus adding to the patients' anxiety about the next dressing change. In addition to the psychological effects, stress and pain can actually impair the healing process, resulting in longer healing times and greater costs. **(Dominic, Andrews, 2014)**

Incision and operative pain will persist for hours to days depending on the type and location of the surgery. Complete freedom from pain is not possible. To indicate that a hospital peri-operative service or a physician can provide "Pain- Free" environment is misrepresentation and will disappoint children, families and caregivers. Preoperative education about the surgery and a pain management plan, development of skills designed to decrease anticipatory anxiety and active participation in treatment planning can be helpful for some children and families. Adjunctive therapy, such as visual reality, hypnosis, pet therapy and play therapy, also can decrease the need for potent analgesics postoperatively. **(Nelson, 2008)**

A child identifies pain based on his or her experiences with pain in the past. The number of episodes of pain, the type of pain , the severity or intensity of the previous pain experiences, and how the child responded all affect how the child will perceive and respond to the current experiences. Several research studies have demonstrated that children who had negative experiences with pain involving a routine blood-drawing procedure and frequent change wound dressing exhibited an increase in anxiety and stress and greater pain when faced with the procedure again**. (Kyle,2009)**

Daily wound dressing in children causes anxiety and pain. Nursing interventions in the form of distraction can reduce the pain to a great extent. In view of this the researcher would like to test the effectiveness of cartoon animation movies, music therapy and kaleidoscope among children undergoing surgical dressing**.**

1.3 Statement of the Problem:

A comparative study to assess the effectiveness of cartoon animation, music therapy & kaleidoscope on pain reduction during surgical dressing among children aged 4-12 at PSG hospitals, Coimbatore

1.4 Objectives:

1. To assess the pain level before, during and after surgical dressing at various time intervals.
2. To assess the effectiveness of cartoon animation, music therapy & kaleidoscope inreduction of pain during and after surgical dressing.
3. To determine the association between the selected demographic variables with the pain level of children before and after surgical dressing.
4. To find correlation between investigator's, parents and child pain perception.

1.5 Assumptions:

1. Children may experience pain during surgical dressing and elicit behavioral changes.
2. Distraction techniques in children may reduce pain during any painful situation.

1.6 Hypotheses:

H_1: There will be a significant difference in the pain scores between the children who receive cartoon animation and who receive music therapy for pain reduction during and after surgical dressing at 0.05 level of significance.

H_2: There will be a significant difference in the pain scores between the children who receive music therapy and who receive kaleidoscope for pain reduction during and after surgical dressing at 0.05 level of significance.

H_3: There will be a significant difference in the pain scores between the children who receive cartoon animation and who receive kaleidoscope for pain reduction during and after surgical dressing at 0.05 level of significance.

H_4: There will be an association between surgical pain and selected baseline variables among children at 0.05 level of significance.

H_5: There will be a correlation between investigator's, parents and child pain perception.

1.7 Delimitations:

1. The study is delimited to children aged 4-12 who undergo surgical dressing.
2. The study is delimited only to surgical dressings.
3. Children between 4-12 years who can able to self-rate the pain level.

1.8 Operational Definition:

Effectiveness:

Effectiveness refers to the outcome of cartoon animation, music therapy & kaleidoscope in terms of reduction of pain level as measured by FLACC pain scale by investigator, Wong Baker pain scale by parents and numerical pain scale rated by children.

Cartoon Animation:

An animated cartoon refers to the standard children cartoon animation movies such as Tom & Jerry, Cinderella, Tarzan shown to children during and after surgical dressing.

Music therapy:

Music therapy refers to Tamil rhymes such as amma ingae vaa vaa, yanai peria yanai, etc. and English rhymes such as merrily merrily life is but a dreams, mary hand a little lamb, etc. heard by children during and after surgical dressing.

Kaleidoscope:

It refers to a cylindrical structure with a view of colourful pattern inside the closed mirror, when viewed through the eyes.

Pain:

The behavioural expressions of children during surgical dressing measured using FLACC pain scale by investigator, Wong Baker pain scale by parents and numerical pain scale by children.

Surgical dressing:

It refers to the post-operative surgical dressing done to the children with various surgical conditions such as colostomy, appendicitis, hernia, extropy of bladder, agumentation, circumcision and hypospadias repair.

Children:

It refers to Children aged 4-12 who admitted in the pediatric surgical ward, special ward and day care centre at PSG hospitals during the post- operative period.

1.9 Projected outcome:

Primary outcome:

Cartoon animation, music therapy and kaleidoscope will be a distractive therapy for a child during surgical dressing and there by reduce the pain on surgical dressing.

Secondary outcome:

Distractive techniques may divert the child's mind from pain and make the child feel comfortable during surgical dressing.

1.10 Conceptual Framework:

Conceptualization is the process of forming ideas, designs and plans. A conceptual framework deals with the concepts assembled together by virtue of relevance to the research problem, which provides a certain frame of reference for clinical practice, research and education.

The conceptual framework of the present study is based on the Wiedenbach's prescriptive theory. It is a situation producing theory, which may be described as one

that conceptualizes both a desired situation and the prescription by which it is to be brought about.

Widen Bach's Prescriptive Theory has 3 compeers or concepts

The central purpose: it is the purpose which the practitioner recognizes as essential to the practice of discipline.

In this study the central purpose is the identification of the effectiveness of cartoon animation, music therapy and kaleidoscope on pain reduction during surgical dressing.

The prescription: Prescription is for the fulfilment of the central purpose. It is directive of at least 3 kinds of voluntary actions. Mutually understood and agreed upon action, recipient's directed action and practitioner directed action.

In this study prescription refers to the administration of Cartoon animation, Music therapy and Kaleidoscope to the children after explaining the subjects about the intervention and obtaining the informed consent from them to participate in the study.

The realities: The realities are the immediate situations that influence the fulfilment of the central purpose. It consists of all the factors- physical, physiological, emotional and spiritual- that are at play in a situation in which nursing actions occur at a given moment. Weidenbach's defines the five realities as:

a. The agent who is practicing nurse or her delegate is characterized by personal attributes, capacities and most importantly commitments and competence in nursing and her knowledge & skill in pain assessment.
   In this study the agent is the investigator
b. The recipient, the children is characterized by personal attributes, problems, capacities, aspirations and most importantly, ability to cope with the problems being experienced. The children aged 4-12 years is the recipient of the nurse's actions. In this study the recipients are the postoperative patients who have undergone surgery and are being treated in the different postoperative wards of the selected hospital.

c. The goal is the desired outcome which the nurse wishes to achieve. In this study, goal is to reduce the pain level during surgical dressing.
d. The framework consists of human, environmental, professional and organizational facilities that not only make up the context within which nursing is practiced, but also contributes to its currently existing limits. In this study the framework is the philosophy, policies, rules and regulations of the hospital, the caregiver's role, nursing care received by the children, medical treatment received by the children and Cartoon animation or Music therapy or Kaleidoscope provided to children during surgical dressing.
e. The means is the prescription for care which the nurse develops based on her central purpose which is implemented in the realities of the situation. In this study the means is Cartoon animation, Music therapy and Kaleidoscope through which the investigator achieves the goal.

According to Weidenbach, nursing practice has three components:

a. Identification of patient's need for help
b. Ministration of the help needed
c. Validation that action taken was helpful to patient

In this study, the investigator identified the comfort need of the postoperative surgical dressing to the children through the assessment of pain. She administers "Cartoon animation, Music therapy and Kaleidoscope" with a view to provide diversion from pain and to reduce discomfort during surgical dressing. The effect of the intervention is then validated through post-assessment of pain.

In Weidenbach's nursing process, she identifies seven levels of awareness that is sensation, perception, assumption, realization, insight, design and decision.

Sensation is expressed as sensory impression, and perception the interpretation of sensory impression, assumption the meaning nurse attaches to the perception. These three level of awareness are obtained through the focus to the nurse's attention on the stimulus; they are intuitive rather than cognitive and may be initial involuntary responses.

Progressing from intuition to cognition, the nurse's action becomes voluntary than involuntary. The next four levels of awareness occur in the voluntary phase, realization in which the nurse begins to validate the assumption previously made about patients behaviour, insight which includes joint planning and additional knowledge about the cause of the problem, design (the plan of action decided on by the nurse and confirmed by the patient) and decision (the nurse's performance of a responsible action).

In the present study, the investigator senses and perceives the child's need for comfort and assumes that Cartoon animation, Music therapy, Kaleidoscope will reduce pain and anxiety and promote the wellbeing of the postoperative child. The assumption is validate and a mutual plan of Cartoon animation, Music therapy and Kaleidoscope is set between the child and the investigator following which the intervention plan is carried out.

In summary, the nurse with her unique personality, philosophy, education and life experiences, assesses the individual's health status and potential for the development of problems. She identifies the prescription and its implementation are affected by realities or strengths and limitations of the situation. Validation is then obtained that the help provided was indeed helpful to the patient.

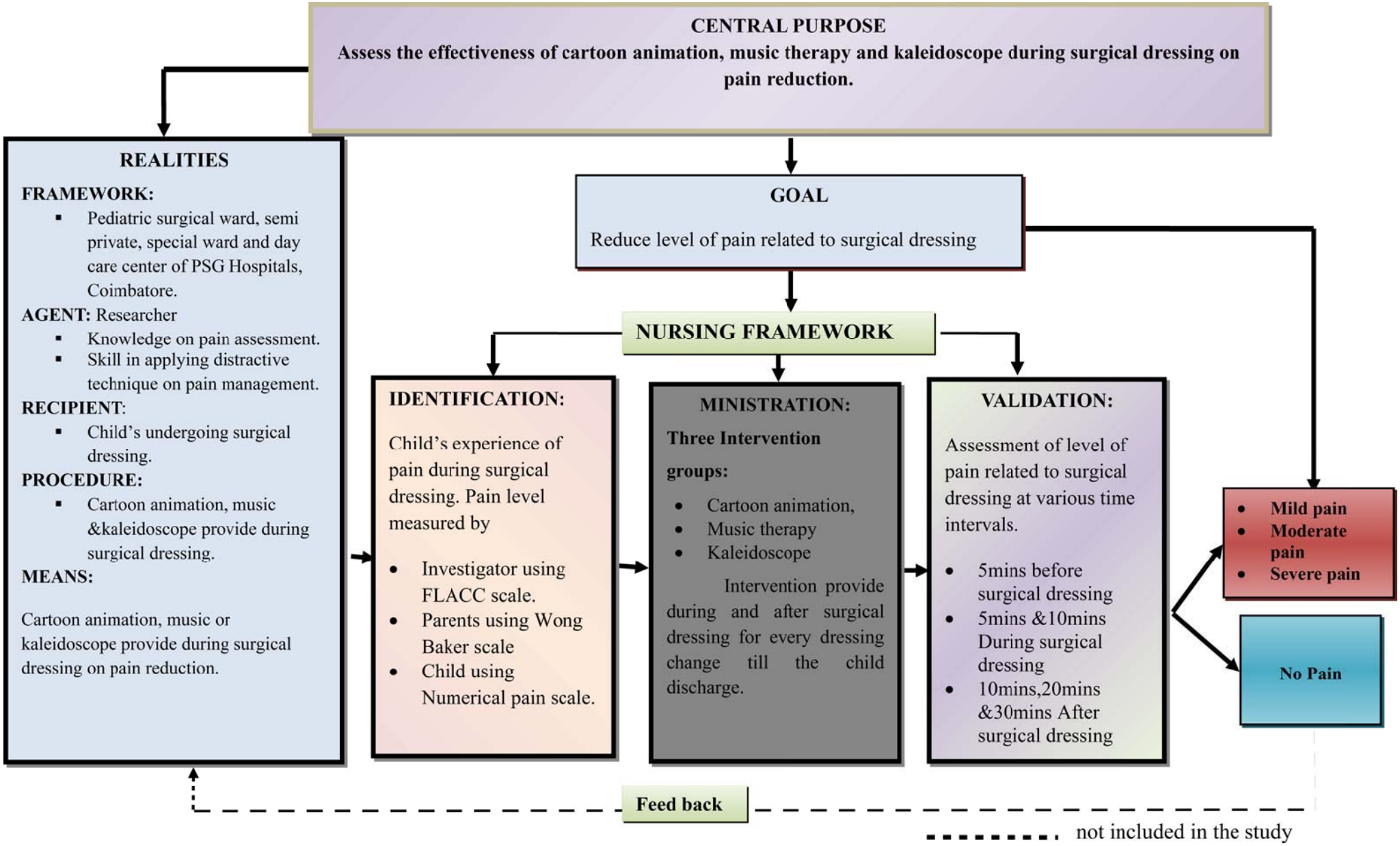

Figure 1.1 Modified Wiedenbach's prescriptive Theory to assess the effectiveness of cartoon animation, music therapy and kaleidoscope on pain reduction during surgical dressing.

CHAPTER II

REVIEW OF LITERATURE

Review of literature is key step in the research process literature review in essential to locate similar of related studies that have already been completed which helped the investigator to develop deeper insight in to the problem. Review of literature is a scientific identification, location a summary of the written research. The related review of literature has been organized under the following:

Sections:

2.1. Literature related to the effectiveness of distraction during painful procedure.

2.2. Literature related to the reliability and validity of pain scale.

2.1. Literature related to the effectiveness of distraction during painful procedure.

A randomized clinical trial study was conducted at Department of Nursing, Kagawa, Japan on reducing pain associated with immunization to use with interactive distraction (Using picture card) and passive distraction (Watching animated DVD) and control group (Standard routine care), among 102 children aged 3-4 years, the result shows control group mean pain score 6.1±2.9 at P=0.021, animation DVD group mean pain score 1.3±1.9 at P=0.002 and cared group mean pain score 3.1±2.1 at P=0.001. It indicate watching animation and using picture card do seem to be effective in reducing high level of pain. **(Kimie Tanimot, et al., 2015)**

A prospective, randomized and controlled trial was conducted at Turkey on assess the effectiveness of listening to the music of cartoon,balloon inflation and distraction cards using on pain and anxiety of children during phlebotomy,among 120 children under 6-12 years.The self-reported procedural pain levels showed significant difference among the study group (P=0.40), and anxiety perception (P=0.032). The result of the study was all the forms of distraction significantly reduced pain and anxiety perception. **(Sahiner & Demirgoz Bal, 2015)**

A Prospective randomized and controlled trial study to investigate two different distraction methods, distraction cards and kaleidoscope, on pain and anxiety relief of children during phlebotomy, among 188 children under 7–11 year-old children was conducted at US national institution of health. Children were randomized into three groups: the distraction cards group, the kaleidoscope group, and the control group. Data was obtained by interviewing the children with their parents and the observer before and after the procedure. The pain levels of the children were assessed by the parent and observer reports as well as self-report using the Wong Baker FACES Pain Rating Scale. The anxiety levels of children were assessed by parent and observer reports using Children Fear Scale. The findings are distraction card group (2.41 ± 2.49) and the kaleidoscope group (3.10 ± 2.16) had lower pain levels than the control group (4.44 ± 3.64). The distraction card group had the lowest pain levels (2.41 ± 2.49) among all groups. The procedural anxiety levels of children were significantly different among the groups (p = <.001). Both the distraction card group (1.10 ± 1.20) and the kaleidoscope group (1.61 ± 1.12) had lower anxiety levels than the control group (2.41 ± 1.30). The distraction card group had the lowest anxiety levels (p = <.001).The result shows distraction cards were the most effective method for pain and anxiety relief of children during phlebotomy. **(Canbulat N, SevilİInal and Sonmezer H.2014)**

A Randomized clinical trial study was conducted at South Africa, music to reduce pain and distress in the pediatric emergency department undergoing intravenous placement, among 42 children under aged 3 to 11 years. Children were randomized into three groups: Music (recordings selected by a music therapist via ambient speakers) vs standard care. The behavioral distress was assessed by using the Observational Scale of Behavioral Distress-Revised and outcomes included child-reported pain, heart rate, parent and health care provider satisfaction, ease of performing the procedure, and parental anxiety. The result found no significant difference in the change in behavioral distress from before the procedure to immediately after the procedure. When children who had no distress during the procedure were removed from the analysis, there was a significantly less increase in distress for the music group (standard care group $p<0.2$ Vs music group $p<0.001$,

P<0.05). Pain scores among children in the standard care group increased by 2 points, while they remained the same in the music group (P<0.04). The parent satisfaction with the management of children's pain was different between groups, although not statistically significant (P<0.07). Health care providers were more satisfied with the intravenous placement in the music group (86% very satisfied) compared with the standard care group (48%) (P<0.02). **(Hartling L, Newton AS, et al., 2013)**

A single case randomization study evaluated the feasibility and efficacy of passive and interactive videogame distraction on behavioural distress for a preschool-aged child receiving repeated burn dressing changes at University of Maryland, Baltimore County, among 13 children under 4-year-old child who underwent 3 baseline and 10 videogame distraction sessions (5 passive and 5 interactive) using a restricted alternating treatments design. Observed behavioural distress was coded by parents and nurses (M = 58.6 & 57.6; Mdiff = 36.0 & 23.6 at p = .01) & (M = 49.4; Mdiff = 14.8 at p< .05) respectively .The finding shows Interactive videogame distraction appearsto be a feasible and effective pain management. **(Wohlheiter, M.Dahlquist, 2013)**

An experimental study was conducted to evaluate the effectiveness of distraction on children's cold pressor pain tolerance at Adelaide, South Australia. Active distraction is playing videogame and passive distraction by watching the output of videogame,among 79 children under the age of 6-15 years. The finding shows that (M±SD=1.34±26, t-6.42, at p<0.001, and (M±SD=1.46±.31, t-9.75, at p<0.001. respectively for passive distraction and active distraction. The result indicates that passive distraction was more effective than active distraction. **(Emily F.Law, et al., 2011)**

A systemic review was conducted at University of Maryland Baltimore County,to determine the usefulness of distraction to decrease children's distress behavior and pain during medical procedures. The method used for the study is Hunter and Schmidt's (1990) procedures were used to analyze 16 studies (total n = 491) on children's distress behavior and 10 studies (total n = 535) on children's pain. The result of the study is for distress behavior, the mean effect size was 0.33 ±0.17, with 74% of

the variance accounted for by children. For pain, the mean effect size was 0.62 ±0.42 with 35% of the variance accounted. Analysis of studies on pain that limited the sample to children 7 years of age or younger (total n = 286) increased the amount of explained variance to 60%.Distraction had a positive effect on children's distress behavior across the populations represented. (**Dr. Pandan Mohd Sinor, 2011)**

An experimental study was conducted to assess the effectiveness of children watch video games, who treat young Children with burns at Nationwide Children's Hospital in Columbus, Ohio, among 13 children under the age of 4-7.Finding shows that the video games distract the young children attention away from the pain that accompanies dressing changes. The result shows specialized video game system (mean pain score 4.1±2.9 at 0.05) they are using is an effective means of diversion therapy. **(Mark DW and Brendak W, 2009)**

A descriptive intervention–control group study was conducted at the Biochemical Laboratory of Ataturk University, Yakutiye Research Hospital Erzurum, Turkey,to assess the effect of distraction (looking through kaleidoscopes) to reduce perceived pain, during venipuncture in healthy school-age children, among 206 Children under aged 7-11 years. The data was obtained by a form determining introductory features of the children and Wong–Baker FACES Pain Rating Scale and Visual Analogue Scale evaluating the pain. The results shows the mean scores of the intervention group (3·14, SD 1·41) and the control group (3·80, SD 1·42) was statistically significant ($t = 3{\cdot}144$, $p < 0{\cdot}01$).It was detected that the distraction made with kaleidoscope effectively reduced the pain related to venipuncture in school children. (**Tufekci F, Çelebioglu A and Kuçukoglu S,2009**)

A randomized clinical trial study was conducted to evaluate the effect of self – selected distracters (ie bubbles, I Spy: super challenger book, music table, virtual reality glasses, or handheld video games) on pain, fear, and distress in 50 children and adolescents with cancer, aged 5 to 18, with venipuncture at C.S.Mott Hospital, Colorado. Participants were randomized to the control group (n=28) to receive standard care and experimental group (n=22) to receive distraction plus standard care.

Self – reported pain and fear were significantly correlated (r = 0.76 at P<0.1) within treatment groups but not significantly different between groups. Intervention participants demonstrated significantly less fear (p<0.001) and distress (P<0.03) as rated by the nurse and approached significantly less fear (p<0.07) as rated by the parent. (**Biermer.AW, et al., 2007)**

A Prospective randomized, controlled study was conducted to evaluate the interactive music as a treatment for pain and stress in children during venipuncture at Italian hospital, among 108 children under 4–13 years of age undergoing blood tests. They were randomly assigned to a music group (n =54), in which the child underwent the procedure while interacting with the musicians in the presence of a parent and a control group (n = 54), in which only the parent provided support to the child during the procedure. The distress experienced by the child before, during and after the blood test was assessed with the Observation Scale of Behavioral Distress, and pain experience with FACES scale (Wong Baker Scale) .The results show that distress and pain intensity was significantly lower (p <0.001; p <.05) in the music group compared with the control group**. (Anastasi F, CaprilliS,et al.,2007)**

A quasi experimental study was conducted to compare the effect of two forms of distraction on injection pain of preschool children, among 105 children (53 girls and 52 boys) under age 4 to6 years needing DPT immunizations at department of pediatric, Toronto, Canada. Study children were randomly assigned to receive one of three treatments with their DPT injection: touch, bubble-blowing, or standard care. Both the forms of distraction touch (M±SD=6.5±2.5 at p<0.05 level) and bubble-blowing (M±SD=5.9±1.5 at p<0.05level)significantly reduced pain perception. **(Schechter NL, Zempshy WT, et al., 2007)**

A three group randomized design study was conducted to assess the analgesic effect of passive or active distraction during venipuncture in children in Siena, Italy, among 69 children aged 7–12 years who were undergoing venipuncture. The children were randomly divided into three groups; a control group (C) without any distraction procedure, a group (M) in which mothers performed active distraction, and a TV group (TV) in which passive distraction (a TV cartoon) was used. Both mothers and

children scored pain level after the procedure. The result shows, pain levels rated by the children as 23.04 ± 24.57, 17.39 ±21.36, and 8.91 ±8.65 for the C, M, and TV groups, respectively. Pain levels rated by mothers were 21.30 ±19.9, 23.04 ±18.39, and 12.17 ±12.14 for the C, M, and TV groups, respectively. Scores assigned by mothers and children indicated that procedures performed during TV watching were less painful ($p<0.05$) than control or procedures performed during active distraction.The result indicated thatTV watching was more effective than active distraction. **(Bellieni CV, et al., 2006**).

A randomized clinical trial study was conducted at university of Washington, assess the effectiveness of virtual reality for paediatric pain distraction during I.V. placement, among 20 children (12 boys, 8 girls) requiring I.V. placement for a magnetic resonance imaging /computed tomography (MRI/CT) scan were randomly assigned to two group: (1) virtual reality (VR) distraction using street luge (5DT), presented via a head- mounted display, or (2) Standard of care (topical anaesthetic) with no distraction.Pain level rated by the Faces Pain Scale. The result of the study was significant differences were defected within the VR condition. There was a sufficient amount of evidence supporting the efficacy of street luge as a pediatric pain distraction tool during I.V. placement and child, parent, and nurse – reported satisfaction with pain management. **(Gold JI, et al., 2006).**

A randomized clinical trial study was conducted at Saint francis medical centre, tulsa, to assess the analgesic effect of watching TV during venepuncture, among 50 children aged 7-12 years were randomly divided into two groups: a control group (C) without any distraction procedure and a TV group (TV) in which passive distraction (a TV cartoon) was used. Pain levels rated by the children were 35.04 and 16.91 for the C, and TV groups, respectively and pain levels rated by mothers were 41.30 and 12.17 for the C, and TV groups, respectively. Scores assigned by mothers and children indicated that procedures performed during TV watching were less painful ($P<0.05$) than control or procedures performed during active distraction, **(B.Ricci, Morgese,G. Buonocore, 2006)**

2.2. Literature related to the reliability and validity of pain scale.

A study was conducted to evaluate the Validity and reliability assessment of the Brazilian version of the Faces Pain Scale-Revised at Ribeirão Preto, Brazil, among 214 children under 6 to 10 years of age include 113 girls and 101 boys. The children ranked the faces of the FPS-R according to pain intensity were correctly ranked by 47% of the younger children (6 to 7 years old) and 52% of the older children (8 to 10 years old). The test-retest reliability coefficient was $\tau = .52$ ($p < .01$). This study provides evidence of the validity and reliability of the FPS-R as a pain intensity measurement. **(Charry E,PiolaJ, et al., 2014)**

A study was conducted at University of Toronto, Toronto, Ontario, Canada, to evaluate the construct validity (including sensitivity to change) of the numerical rating scale (NRS) for pain intensity (I) and unpleasantness (U) and participant pain scale preferences in children/adolescents with acute postoperative pain. Eighty-three children aged 8 to 18 years completed 3 pain scales including NRS, Verbal Rating Scale (VRS), and faces scales (Faces Pain Scale-Revised [FPS-R] and Facial Affective Scale [FAS], respectively) for pain intensity (I) and unpleasantness (U) 48 to 72 hours after major surgery. As result show that NRS correlated highly with the VRS and FPS-R and the NRSU correlated highly with the VRSU and FAS 48 to 72 hours after surgery. Children found the faces scales the easiest to use while the VRS was liked the least and was the hardest to use. The NRS has adequate (Spearman correlation $r = 0.70$ at $p<0.001$) evidence of construct validity including sensitivity for both pain intensity and unpleasantness. **(Gabrielle Pag M, Joel Katz, et al., 2012)**

An observational study to evaluate the reliability and validity of the Face, Legs, Activity, Cry, Consolability (FLACC) Behavioral Scale in assessing pain in critically ill adults and children unable to self-report painat the University of Michigan Health System in Ann Arbor,among 29 critically ill adults and 8 children observed and scored pain behaviors. FLACC scores correlated significantly supporting excellent criterion validity & inter-rater reliability in adults ($\rho=0.963$; $P<.01$). & highly correlated ($\rho=0.849$; $P<.01$) in critically ill children. The finding shows FLACC

behavioral pain tool has excellent reliability and validity in assessing pain in critically ill adults and children. **(Voepel-Lewis, Zanotti, et al,,2010)**

A study was conducted to evaluate the validity and reliability of the revised and individualized face legs activity cry and consolability (FLACC) behavioral pain assessment tool in children with CI at Uttar Pradesh, India, among 52 children under aged 4-19 years. Twenty one parents added individualized pain behaviors to the revised FLACC. Inter-rater reliability was supported by excellent interclass correlation coefficients (ICC, ranging from 0.76 to 0.90) and adequate kappa statistics (0.44-0.57). Criterion validity was supported by the correlations between FLACC, parent and child scores ($r= 0.65-0.87$; $P< 0.001$). Construct validity was demonstrated by the decrease in FLACC scores following analgesic administration (6.1 ± 2.6 Vs 1.9 ± 2.7; $P< 0.001$). The study supports the reliability and validity of the FLACC as a measure of pain in children with CI. **(Malviya S.Vopel, et al., 2006)**

Summary:

Literatures related to distractive technique on pain management for painful procedure in children most of literature supported the present study. Literature studies which included randomized, experimental and systemic review study were reviewed deeply for the present study. Every research has positive result on pain reduction with distractive techniques. However most of the study support medical painful procedure, so these kinds of researches to be encouraged in surgical dressing painful procedure.

CHAPTER III

MATERIALS AND METHODS

Research design is the framework for addressing a research question including strategies for enhancing the study's integrity (Polit, 2008). The present study was designed to determine the comparative study to assess the effectiveness of cartoon animation, music therapy& kaleidoscope on pain reduction during surgical dressing among 4-12 years of children. The study was conducted by adopting following steps of research process as research design, setting, population and sampling, sample size determination, criteria for selection of samples, instruments and tools for measuring variables, techniques of data collection, and method of data analysis and report of pilot study.

3.1Research Approach

The research approach used for the study was quantitative evaluative approach.

Research design:

The research design used for this study was quasi experimental, time series design to evaluate the effectiveness on cartoon animation, music therapy & kaleidoscope in pain reduction during surgical dressing among 4-12 years of children.

O_1: Assessment of pain at 5mins before surgical dressing.

X_1: Cartoon animation shown to children during surgical dressing.

X_2: Music therapy given to children during surgical dressing.

X_3: Kaleidoscope shown to children during surgical dressing.

O_2, O_3: Assessment of pain at 5mins, 10mins during surgical dressing.

O_4, O_5, O_6: Assessment of pain at 10mins, 20mins, 30mins after surgical dressing.

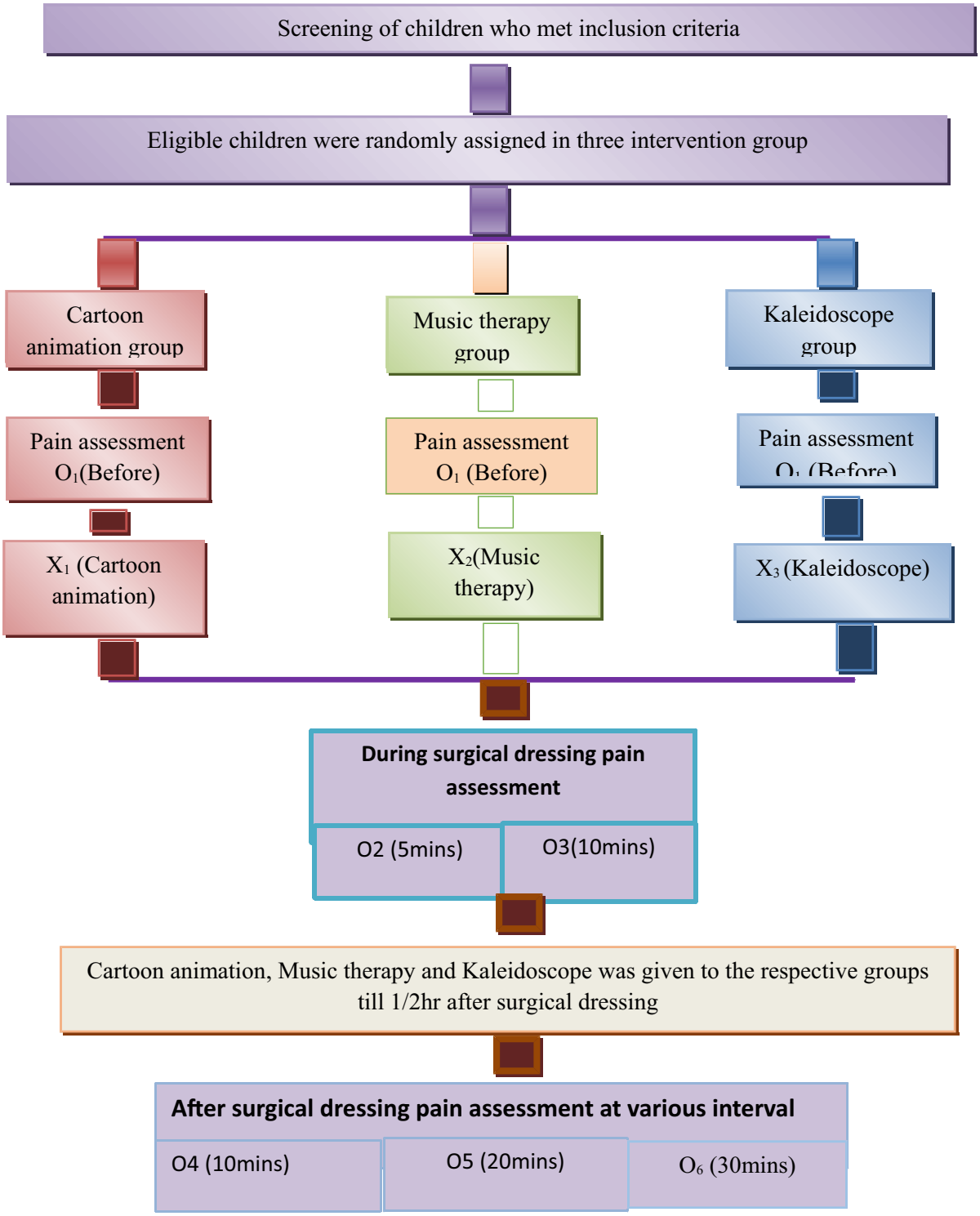

Figure 3.1 Schematic representation of Time series design.

3.2 Variables of the study

3.2.1 Independent variables:

The independent variables of this study is cartoon animation, music therapy and kaleidoscope provided to the children during after surgical dressing.

3.2.2 Dependent variable:

The dependent variables of the study are pain levels before, during, and after surgical dressing.

3.2.3 Extraneous variables:

The extraneous variable of the study are chronological age, child's developmental age, type & stage of surgery and day of post-operative.

3.3 Setting of the study:

The study was conducted in pediatric surgical ward, special ward, semiprivate ward and paediatric surgery OPD at PSG Hospitals, Peelamedu, Coimbatore, a multi-specialty hospital and research centre with bed strength of 1300, which caters multilingual patient from various parts of the country. The hospital is reputed as the first teaching hospital in Tamil Nadu and the third teaching hospital in India to get certified by National Accredited Board for Hospital and Health Care Providers (NABH). Pediatric surgical ward bed strength is 15 and children are also admitted in special ward, semiprivate ward and day care centre. The total number of children admitted for each year is 502 and 42 children are admitted in a month. There are three paediatric surgeons performing eight surgeries per week as per scheduled theatre day. The pediatric department of this hospital has one clinical nurse specialist, one in-charge nurse, 12 experienced and qualified staff nurse, ward clerk and ward assistants.

3.4 Population and Sampling:

Population selected for this study is 4-12 years children who had undergone single and multi- stage surgical procedure. Approximately per month census in

paediatric ward is 43 and per day child visit to OPD is approximately 30-40. Per month approximately 42 children undergo various surgeries.

3.4.1 Sampling technique and sample size:

Purposive sampling technique was used in the study for selecting the samples. All postoperative children who met the inclusion criteria were selected randomly by lottery method and assigned to three different type of intervention.

Sample size calculation:

Precision Method:

$$n = \frac{Z^2\ SD^2}{(1\%\ \text{of mean})^2}$$

SD= Standard deviation of population.

Z= Value of normal deviate at $p<0.05$ level of significance.

$$n = \frac{1.98^2 \times 15.75^2}{5.8^2}$$

$$=28.75$$

The sample size was $28.75 \times 2 = 58$

Sixty children were randomly allotted to Cartoon animation (20), Music therapy (20), Kaleidoscope (20).

3.4.2 Sample selection criteria:

Inclusion criteria:

- Parents who are willing to allow their children to participate in the study.
- 4-12 years children who are undergoing surgical dressing.
- Parents and children who can understand Tamil or English

Exclusion criteria:

- Children brought for emergency critical care,semi & unconscious children.
- Children with hearing loss & blind
- Mentally challenged children

3.5 Instrument and tool for data collection:

The tool for the study consists of 5 sections;

Section A: Demographic variable of the children:

The demographic variables that includes gender, chronological age, developmental age, order of the child, education, income, previous hospitalization, leisure time and favourite TV show.(Annexure-V)

Section B: Clinical profile

Clinical profiles include diagnosis, name of the surgery, post-operative day, stage of surgery and Pain medication.(Annexure-V)

Section C: FLACC pain scale

Assessment of pain level before, during and after surgical dressing by investigator using FLACC and numerical pain scale.(Annexure-V)

- FLACC scale developed by Merkel SI, Voepol-Lewis T, et al., (1997)
- The scale has five criteria, which are Face, Legs, Activity, Cry, Consolability scale is a measurement used to assess pain for children between the ages of 4-7 years.
- Each criteria assigned a score of 0, 1or 2.
- The scale was scored in a range of 0-10 with 0 representing no pain.
- The established interrater reliability of FLACC scale was found that Spearman's rho correlations =0.88

Section D: Wong Baker pain scale

Assessment of pain level before, during and after surgical dressing by parents using Wong Baker pain scale.(Annexure-V)

- The scale was developed by Donna Wong and Connie Baker in 1988.
- According to child facial expression pain was scored.
- The scored range was 0-10 with 0 representing no pain.
- The established convergent reliability r = 0.63 to 0.94

Section E: Numerical pain scale

Assessment of pain level before, during and after surgical dressing by children using numerical pain scale.(Annexure-V)

- The scale was developed by MC Caffery M. Pasero in 1999.
- Child self- reported the pain level.
- The numerical pain scale was scored in a range of 0-10 with 0 representing no pain.
- The established interrater reliability r=0.76-0.99

Pain score interpretation:

Pain scale is scored in range of 0-10.

No pain	=	0
Mild pain	=	1-3
Moderate pain	=	4-6
Severe pain	=	7-10

3.5.1 Validity and reliability of the tool

Validity of the study tool was determined by nursing and medical expert's opinion from the different fields along with, objective of the study. The experts were requested to give their opinion, clarity and appropriateness, suggestions for the modification of the tool. The reliability, validity and practicability of tool tested through pilot study.

The inter-rater reliability was calculated by spearman's correlation coefficient between investigator's and nurse's pain scores and it was found that r=0.89 for FLACC scale, r = 0.81 for Wong Baker scale and r =0.76 for Numerical pain scale.

3.5.2 Techniques of data collection:

Children who met the inclusion criteria were randomly selected for the study. Main study was conducted for 10 weeks at PSG Hospitals, Coimbatore. Demographic data was obtained from medical records. Pain level was observed before, during and after surgical dressing and its outcome was measured with FLAAC pain scale by investigator, Wong Baker scale by parents and Numerical pain scale by children.

Intervention package:

1. The samples were selected according to the inclusion criteria.
2. Assign the interventions randomly to the selected children.
3. Cartoon animation was shown to the children using laptop during the surgical dressing and 30 minutes after the surgical dressing.
4. Music was played by laptop using headphones to the children during the surgical dressing and 30 minutes after the surgical dressing.
5. Kaleidoscope was shown to the children during the surgical dressing and 30 minutes after the surgical dressing.

3.5.3 Data collection procedure

Formal written permission was sought from the administrator an HOD of the paediatric surgery department, PSG Hospitals, Peelamedu, Coimbatore. The approval for conducting the study was received from IHEC of the institution. The data collection procedure was carried out from 29-07-2015 to 08-09-2015. The samples were selected using purposive sampling technique into three groups as Group I, Group II and Group III to whom interventions such as cartoon animation, music therapy an kaleidoscope was given respectively. Before conducting the study the nature of the therapy was explained to the parents the child and the health personnel. The procedure consists of three phases such as before, during and after the surgical dressing. In the first phase, the pain will be assessed before 5 minutes of the surgical dressing. In the second phase which is during the surgical dressing, the intervention is provided to the

children and the pain was assessed for every 5 minutes until the procedure gets over. In the third phase, the pain was assessed for every 10 minutes for the next 30 minutes after the surgical dressing. In all these three phases, the investigator used FLACC and Numerical pain scale to assess the pain while the parent used Wong Baker pain scale and the child used Numerical pain scale to grade the level of pain experienced during surgical dressing.

3.6 Ethical approval:

The institutional human ethics committee (IHEC), PSG institute of medical science and research had reviewed the proposal on March 2015 in its full board meeting and approved (Annexure-II) the study.

3.7 Report of the pilot study:

Pilot study was conducted to test the practicability of tool and feasibility of tool for conducting the study. It was conducted for a period of one week from 25-05-15 to 30-05-15 at PSG hospitals, Peelamedu, Coimbatore. For pilot study, 10 children were selected according to the inclusion criteria. Among the10 children, 3 children for cartoon animation group, 3 children for music therapy group and 4 children for kaleidoscope group which was the assigned intervention based on children's wish which was found to be difficult as most of the children preferred cartoon animation. At the end of the pilot study, the cartoon animation was found to bebetter distractive technique than music therapy and kaleidoscope. This study was found to be feasible.

3.7.1Changes brought after pilot study:

After the pilot study, modifications weredone on the intervention given to the sample. That is, intervention was assigned randomly to the children by investigator instead of children's wish. Since the desired sample size could not be achieved in each group.

3.8. Data analysis plan:

i. Descriptive statistics

- Frequency and percentage distribution of sample to assess demographic variables
- Frequency and percentage distribution will be used to describe the level of pain before, during and after surgical dressing.

ii. Inferential statistics

- To compare the effectiveness of cartoon animation, music therapy & Kaleidoscope to one way ANOVA will be used.
- Karl Pearson's correlation coefficient test will be used to find out the difference between parents and investigator's pain score and child and investigator's pain score.

Summary:

This chapter discussed the material and methodology used for the present study. The methods used in this study are quasi experimental, time series design and purposive sampling technique. This chapter also deals with the research design, variables, settings, sample selection criteria, instruments and tools for data collection and the data analysis plan. Next chapter will be dealing on data analysis and Interpretation.

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

Data analysis is a systemic organization including the synthesis of research data and the testing of research hypothesis using those data. Interpretation is the process of making sense of the result and examining their implication. (Polit and Beck, 2008). Data analysis is the process which is essential to reduce, organize and give meaning to data and address the research purpose, questions and hypothesis.

This chapter deals with analysis and interpretation of data. The data was collected from 60 children on demographic data, clinical profile and pain level in surgical dressing for various intervals. The data was compiled, analysed and then tested for their significance through statistical analysis.

The analysis in this chapter includes:

SECTION-1: Frequency and percentage distribution

4.1 Frequency and percentage distribution of the demographic variables of the children.
4.2 Frequency and percentage distribution in level of pain assessed by investigator for FLACC and numerical pain scale.
4.3 Frequency and percentage distribution in level of pain assessed by parents for Wong Baker scale.
4.4 Frequency and percentage distribution in level of pain assessed by child for numerical pain scale.

SECTION-2: Comparison on effectiveness cartoon animation, music therapy and kaleidoscope

4.5 Comparison on effectiveness cartoon animation, music therapy & kaleidoscope for level of pain during & after surgical dressing according to investigator pain perception.
4.6 Comparison on effectiveness cartoon animation, music therapy & kaleidoscope for level of pain during & after surgical dressing according to Parents pain perception.

4.7 Comparison on effectiveness cartoon animation, music therapy & kaleidoscope for level of pain during & after surgical dressing according to Children pain experience.

SECTION-3: Association on demographic variables with pain level.

4.8 Association on demographic variables of children with the investigator's pain score for before surgical dressing

4.9 Association on demographic variables of children with the investigator's pain score for after surgical dressing.

SECTION-4: Correlation between investigator, parent& child pain perception

4.10 Correlation between investigator pain perceptions with parent's pain perception.

4.11 Correlation between investigator pain perceptions with Child pain experience.

4.12 Correlation between parents pain perception with Children pain experience.

SECTION-1: Frequency and percentage distribution

Table 4.1

Frequency and percentage distribution of the demographic variables of the child

n=60

Sl. No	Demographic variables	Cartoon Animation Group (20)		Music Therapy Group (20)		Kaleidoscope Group (20)	
		f	%	f	%	f	%
1	**Age of the child in year**						
	a. 4-6	8	40	8	40	9	45
	b. 7-9	6	30	7	35	5	25
	c. 10-12	6	30	5	25	6	30
2	**Developmental age in child**						
	a. Preschool	9	45	4	20	8	40
	b. School age	11	55	16	80	12	50
3	**Gender**						
	a. Male	14	70	8	40	13	65
	b. Female	6	30	12	60	7	35
4	**Stage of surgery**						
	a. Single surgery	11	55	12	60	12	60
	b. Multi stage	9	45	8	40	8	40
5	**Type of surgery**						
	a. Abdominal surgeries	4	20	6	30	3	15
	b. Genitourinary surgeries	11	55	6	30	9	45
	c. Endocrine surgeries	1	5	2	10	0	0
	d. Integumentary surgeries	2	10	2	10	4	20
	e. Vascular surgeries	2	10	3	15	2	10
	f. Others(Suturing)	0	0	1	5	2	10
6	**Pain medication**						
	Oral	7	35	7	35	12	60
	IV	13	65	13	65	8	40

Table 4.1 shows that less than half of the children 9(45%) were aged 4-6 years and 16(80%) were school aged under kaleidoscope group. Most of the children 12 (60%) were males in music therapy group. Most of the children 12(60%) undergone single surgery in music therapy group. In cartoon animation group half of children 11(55%); in music therapy group less than half of children 6(30%) and kaleidoscope group less than half of children 9(45%) had undergone Genitourinary surgeries. Most

of the children 13(65%) had received pain medication through IV (inj. paracetamol) under cartoon animation group & music therapy group respectively and only 8(40%) in the kaleidoscope group received IV pain medication.

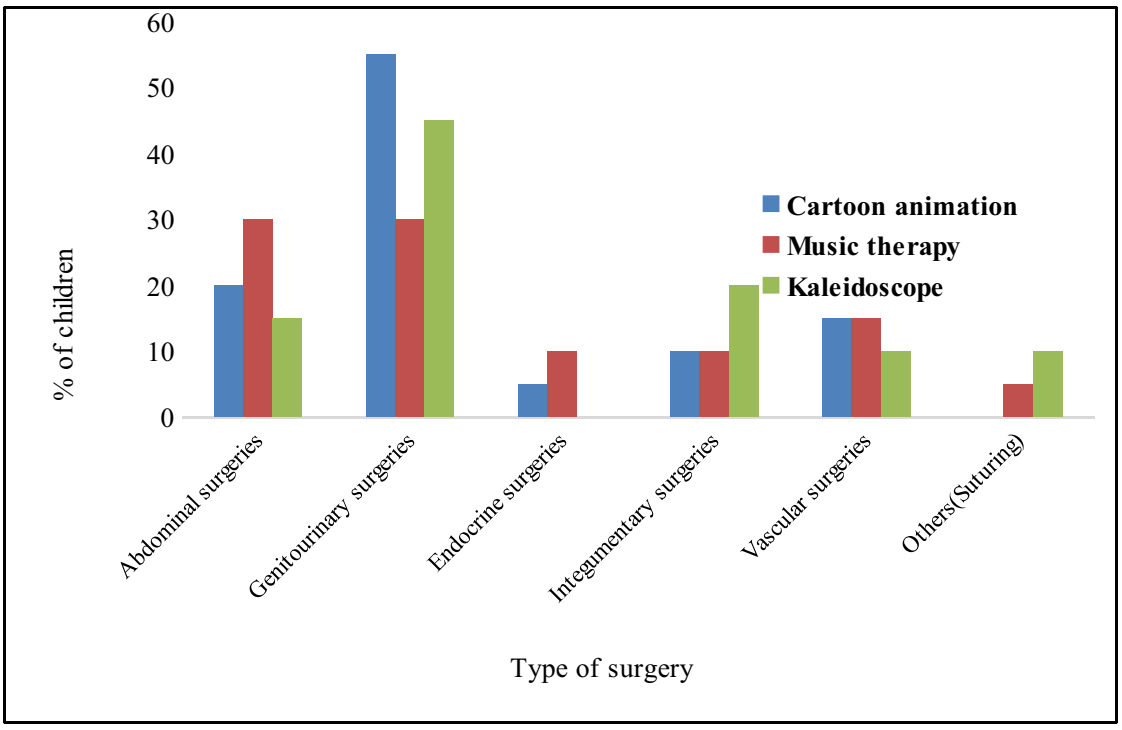

Figure 4.1: Distribution of children based on the type of surgery

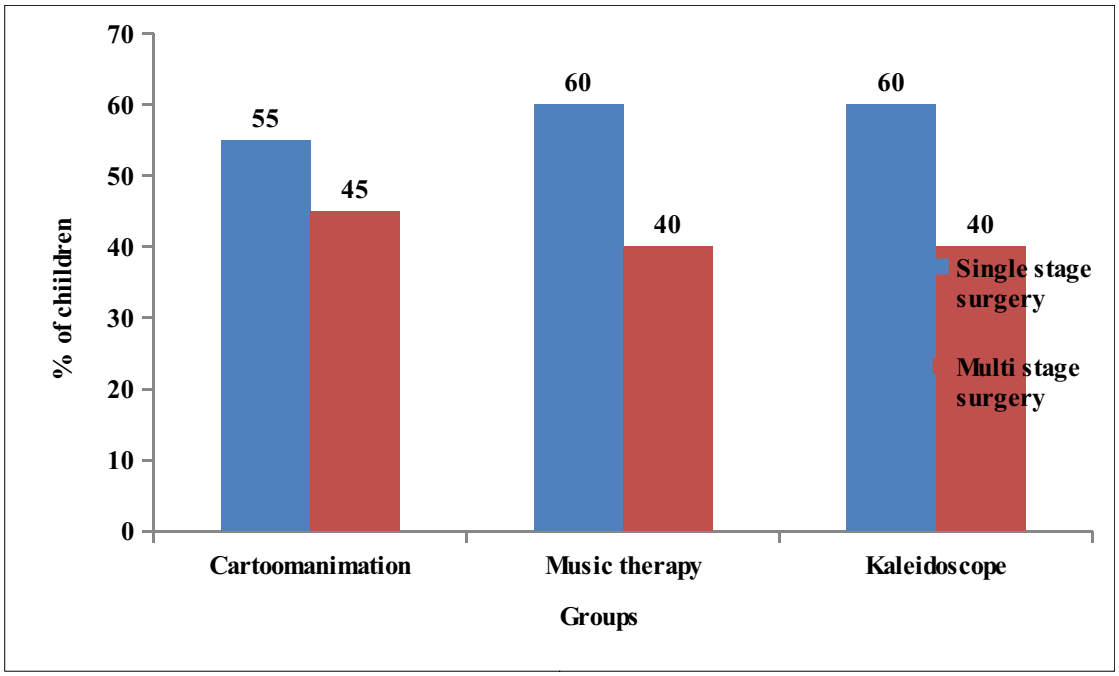

Figure 4.2: Percentage distribution of stage of surgery

Table 4.2

Frequency and percentage distribution in level of pain assessed by investigator for FLACC and numerical pain scale

n=60

Variables	Level of pain	Time of pain assessment					
		Before	During surgical dressing		After surgical dressing		
		5 mins	5 mins	10 mins	10 mins	20 mins	30 mins
		f (%)	f (%)	f (%)	f (%)	f (%)	f (%)
Cartoon animation	Mild	1(5)	6(30)	14(70)	18(90)	20(100)	20(100)
	Moderate	13(65)	10(50)	4(20)	2(10)	0	0
	Severe	6(30)	4(20)	2(10)	0	0	0
Music therapy	Mild	2(10)	4(20)	5(25)	9(45)	8(40)	10(50)
	Moderate	10(50)	9(45)	7(35)	8(40)	10(50)	10(50)
	Severe	8(40)	7(35)	8(40)	3(15)	2(10)	0
Kaleidoscope	Mild	1(5)	2(10)	1(5)	6(30)	10(50)	11(55)
	Moderate	10(50)	10(50)	11(55)	8(40)	6(30)	6(30)
	Severe	9(45)	8(40)	8(40)	6(30)	4(20)	3(15)

Table 4.2 depicts that in cartoon animation group more than half of children 13 (65%) had moderate pain and 6 (30%) of children had severe pain before surgical dressing. Whereas, during 5mins of surgical dressing half of children 10(50%) had moderate pain and after surgical dressing all children 20 (100%) had only mild pain and none of them had severe pain.

In music therapy group, half of children 10 (50%) had moderate pain before surgical dressing. During 5mins surgical dressing 9 (45%) had moderate pain. Half of the children 10 (50%) had moderate pain at 20mins, 30mins after surgical dressing respectively and none of them had severe pain at 30mins after surgical dressing.

In kaleidoscope group, half of children 10 (50%), 11 (55%) experienced moderate pain before and during 10mins surgical dressing. Thirty minutes after surgical dressing 11 (55%) children had mild pain and 3 (15%) children had severe pain.

Table 4.3

Frequency and percentage distribution in level of pain assessed by parents for Wong Baker scale

n =60

Variables	Level of pain	Time of pain assessment					
		Before	During surgical dressing		After surgical dressing		
		5 mins	5 mins	10 mins	10 mins	20 mins	30 mins
		f (%)	f (%)	f (%)	f (%)	f (%)	f (%)
Cartoon animation	Mild	3(15)	9(45)	13(65)	18(90)	20(100)	20(100)
	Moderate	9(45)	9(45)	5(25)	2(10)	0	0
	Severe	8(40)	2(10)	2(10)	0	0	0
Music therapy	Mild	2(10)	5(25)	5(25)	7(35)	8(40)	9(45)
	Moderate	9(45)	5(25)	7(35)	11(55)	10(50)	10(50)
	Severe	9(45)	10(50)	8(40)	2(10)	2(10)	0
Kaleidoscope	Mild	1(5)	0	0	7(35)	10(50)	10(50)
	Moderate	11(55)	11(55)	11(55)	8(40)	4(20)	4(20)
	Severe	8(40)	9(45)	9(45)	5(25)	6(30)	6(30)

Table 4.3 shows that pain assessment scores of parents using Wong Baker scale in cartoon animation group less than half of children 9 (45%) had moderate pain and 8 (40%) of children had severe pain before surgical dressing. Whereas, during 10mins of surgical dressing half of the children 10(50%) children experienced mild pain and after surgical dressing all children 20 (100%) had only mild pain and none of them had severe pain.

In music therapy group, less than half of children 9 (45%) had moderate pain before surgical dressing. During 5mins of surgical dressing half of children 10 (50%) had severe pain. Half of the children 10 (50%) had moderate pain at 20mins, 30minsafter surgical dressing respectively and none of them had severe pain at 30mins after surgical dressing.

In kaleidoscope group, half of children 11 (55%) had moderate pain before andat 5mins, 10mins of during surgical dressing. Half of children 10(50%) had mild pain at 20mins & 30mins after surgical dressing. Only6 (30%) children had severe pain at 30mins after surgical dressing.

Table 4.4

Frequency and percentage distribution in level of pain assessed by child for numerical pain scale

n =60

Variables	Level of pain	Time of pain assessment					
		Before	During surgical dressing		After surgical dressing		
		5 mins	5 mins	10 mins	10 mins	20 mins	30 mins
		f (%)	f (%)	f (%)	f (%)	f (%)	f (%)
Cartoon animation	Mild	1(5)	9(45)	15(75)	20(100)	20(100)	20(100)
	Moderate	13(65)	9(45)	3(15)	0	0	0
	Severe	6(30)	2(10)	2(10)	0	0	0
Music therapy	Mild	1(5)	5(25)	5(25)	7(35)	9(45)	10(50)
	Moderate	10(50)	5(25)	6(30)	10(50)	10(50)	10(50)
	Severe	9(45)	10(50)	9(45)	3(15)	1(5)	0
Kaleidoscope	Mild	1(5)	0	0	7(35)	10(50)	10(50)
	Moderate	9(45)	11(55)	12(60)	7(35)	6(30)	4(20)
	Severe	10(50)	9(45)	8(40)	6(30)	4(20)	6(30)

Table 4.4 shows that in cartoon animation group most of them 13 (65%) children had moderate pain. Majority of children 15 (75%) had mild pain during at 10mins surgical dressing. After surgical dressing all children 20 (100%) had only mild pain and none of them had severe pain.

In music therapy group, half of children 10 (50%) had moderate pain before surgical dressing. During 5mins of surgical dressing half of children 10 (50%) had severe pain. Half of the children 10 (50%) had moderate pain at 10mins, 20mins & 30mins after surgical dressing respectively and none of them had severe pain at 30mins after surgical dressing.

In kaleidoscope group, half of children 10 (50%) had severe pain before and at 10mins during surgical dressing most of them 12(60%) children had moderate pain. Half of children 10(50%) had mild pain at 20mins and 30mins after surgical dressing. Only 6 (30%) children had severe pain at 30mins after surgical dressing.

SECTION-2: Comparison on effectiveness cartoon animation, music therapy and kaleidoscope

Null Hypothesis (H_{01}): There will be no significant difference in the pain scores between the children who receive cartoon animation, music therapy and kaleidoscope on pain reduction during and after surgical dressing at 0.05 level of significance.

Table 4.5

Comparison on effectiveness cartoon animation, music therapy & kaleidoscope for level of pain during and after surgical dressing according to investigator pain assessment

n =60

S. No	Duration	Variables	M ±SD	F value	P value
1	During	Cartoon animation	3.56 ± 1.95	6.287	*0.003
		Music therapy	5.14 ± 2.35		
		Kaleidoscope	6.04 ± 2.37		
2	After	Cartoon animation	1.32 ± 0.77	17.72	*0.003
		Music therapy	3.61 ± 1.73		
		Kaleidoscope	4.61 ± 2.45		

Note: Statistically significant *p<0.05

Table 4.5reveals the assessment of pain by investigator through one way ANOVA which shows that the cartoon animation was very effective in reducing pain in children both during and after surgical dressing (M±SD=3.56±1.95, F=6.3 at p<0.05), (M±SD=1.32±0.77, F=17.72 at p<0.05) in comparison with music therapy and kaleidoscope. Moderate level of pain was experienced by children who received

Null Hypothesis (H_{02}): There will be no significant difference in the pain scores between the children who receive cartoon animation, music therapy and kaleidoscope on pain reduction during and after surgical dressing at 0.05 level of significance.

Table 4.6

Comparison on effectiveness cartoon animation, music therapy and kaleidoscope for level of pain during & after surgical dressing according to Parents pain assessment.

n =60

S. No	Duration	Variables	M ±SD	F value	P value
1	During	Cartoon animation	3.2±1.7	9.79	*0.003
		Music therapy	5.64±2.6		
		Kaleidoscope	6.35±2.3		
2	After	Cartoon animation	1.17±0.8	18.48	*0.003
		Music therapy	3.80±1.7		
		Kaleidoscope	4.73±2.5		

Note: Statistically significant *p<0.05

Table 4.6 shows that the assessment of pain by parents through one way ANOVA which shows that the cartoon animation was very effective in reducing pain in children both during and after surgical dressing (M±SD=3.2±1.7, F=9.79 at p<0.05), (M±SD=1.17±0.8, F=18.48 at p<0.05) in comparison with music therapy and kaleidoscope. Moderate level of pain was experienced by children who received music

Null Hypothesis (H_{03}): There will be no significant difference in the pain scores between the children who receive cartoon animation, music therapy and kaleidoscope on pain reduction during and after surgical dressing at 0.05 level of significance.

Table 4.7

Comparison on effectiveness cartoon animation, music therapy and kaleidoscope for level of pain during & after surgical dressing according to Children pain experience by numerical pain score

n =60

S. No	Duration	Variables	M ±SD	F value	P value
1	During	Cartoon animation	1.18±0.5	8.482	*0.003
		Music therapy	3.8±1.9		
		Kaleidoscope	4.73±2.7		
2	After	Cartoon animation	1.17±0.9	14.2	*0.003
		Music therapy	3.86±2.7		
		Kaleidoscope	4.77±2.8		

Note: Statistically significant *p<0.05

Table 4.7 indicates thatthe assessment of pain by children found that the cartoon animation was very effective in reducing pain in children both during and after surgical dressing (M±SD=1.18±0.5, F=8.48 at p<0.05), (M±SD=1.17±0.9, F=12.2 at p<0.05) in comparison with music therapy and kaleidoscope. Moderate level of pain was experienced by children who received music therapy and kaleidoscope during & after surgical dressing. In this results shows that null hypotheses was rejected and

SECTION-3: Association on demographic variables with pain level.

Null Hypothesis (H_{04}): There will be no association between surgical pain and selected baseline variables among children at 0.05 level of significance.

Table 4.8

Association on demographic variables of children with the investigator's pain score for before surgical dressing using chi-Square test

n =60

Sl. No.	Demographic variables	Mild	Moderate	Severe	Degree of freedom	χ^2 value	Table value	P Value
		f (%)	f (%)	f (%)				
1	**Age of the child in years**				4	9.283	9.49	*0.023
	a) 4to6	1 (1.7)	9 (15)	15 (25)				
	b) 7to9	2 (1.7)	12 (20)	5 (8.3)				
	c) 10to12	2 (3.3)	12 (20)	3 (5)				
2	**Developmental age in child**				2	5.84	5.99	*0.027
	a) Preschool	0 (0)	9 (15)	12 (20)				
	b) School age	4 (6.7)	24 (40)	11 (18.3)				
3	**Gender**				2	2.102 NS	5.99	0.175
	a) Male	2 (3.3)	22 (36.7)	11 (18.3)				
	b) Female	2 (3.3)	11 (18.3)	12 (20)				
4	**Stage of surgery**				2	6.124	5.99	*0.024
	a) Single stage	2 (3.3)	15 (25)	18 (30)				
	b) Multi stage	2 (3.3)	18 (30)	5 (8.3)				
5	**Type of surgery**				10	9.06 NS	18.31	0.095
	a) Abdominal surgeries	2 (3.3)	6 (10)	5 (8.33)				
	b) Genitourinary surgeries	2 (3.3)	16 (26.67)	8 (13.33)				
	c) Endocrine surgeries	0	3 (5)	1 (1.7)				
	d) Integumentary surgeries	0	3 (5)	5 (8.3)				

Table 4.8 clarifies that there is a significant association found in age, developmental age and stage surgery (χ^2= 6.124 at p<0.024,9.28 at p<0.02 and 5.84 at p<0.02) level of pain before surgical dressing. The severe level of pain experienced by preschool children under 4 to 6 years. The level of pain intensity was severe in children who underwent single stage surgery than multistage surgery. Hence the null hypothesis is rejected and research hypothesis is accepted proving that there is an association between pain score with selected demographical data such as age, developmental age and stage surgery, whereas there is no association to all other demographical variables such as gender, type of surgery & pain medication. The chi-square test was computed using the pain scores assessment of invetigator and demographical variables

Table 4.9

Association on demographic variables of children with the investigator's pain score for after surgical dressing using chi-Square test

n =60

Sl. No.	Demographic variables	Mild f (%)	Moderate f (%)	Severe f (%)	Degree of freedom	χ^2 value	Table value	P Value
1	**Age of the child in years**				4	8.79 NS	9.49	0.066
	d) 4 to 6	11(18.33)	11(18.33)	3 (5)				
	e) 7 to 9	14(23.33)	4 (6.66)	0 (8.3)				
	f) 10 to 12	13(21.66)	4(6.66)	0				
2	**Developmental age in child**				2	8.99	5.99	*0.011
	c) Pre school	9 (15)	9 (15)	3 (5)				
	d) School age	29(48.33)	10 (16.66)	0				
3	**Gender**				2	0.741 NS	5.99	0.69
	c) Male	17 (28.3)	14 (23.33)	2 (3.3)				
	d) Female	21 (35)	3(5)	1(1.66)				
4	**Stage of surgery**				2	1.14 NS	5.99	0.564
	c) Single stage	20 (33.3)	13 (21.66)	2 (3.3)				
	d) Multi stage	17 (28.3)	6 (10)	2 (3.3)				
5	**Type of surgery**				10	43.07	18.31	*0.01
	g) Abdominal surgeries	9 (15)	3 (5)	1 (1.66)				
	h) Genitourinary surgeries	19 (31.6)	7 (11.66)	0				
	i) Endocrine surgeries	0	3 (5)	0				
	j) Integumentary surgeries	6(10)	2 (3.3)	0				
	k) Vascular surgeries	3(5)	4 (6.66)	0				

Table 4.9 shows that there is a significant association found in developmental age of child and type of surgery (χ^2= 8.99 at $p<0.01$ & χ^2= 43.07 at $p<0.01$) with level of pain after surgical dressing. The level of pain intensity was mild in children under school age and who underwent genitourinary surgeries. Hence the null hypothesis is rejected and research hypothesis is accepted and there is no association to all other demographical variables such as age, gender, stage of surgery & pain medication.

SECTION-4: Correlation between investigator, parents and child perception of pain

Table 4.10

Correlation between investigator pain scores with parent's pain scores

Null Hypothesis (H_{05}): There will be a no correlation between investigator and parent's pain score.

n=60

S. No	Variables	Duration	M ±SD		r value	p value
			Investigator Pain score	Parent's pain score		
1	Cartoon animation	Before	6.1 ± 2.1	5.9 ± 2.9	0.89	** 0.00001
		During	3.56 ± 1.95	3.2 ± 1.7	0.967	
		After	1.32 ± 0.77	1.17 ± 0.8	0.865	
2	Music therapy	Before	6.3 ± 2.4	6.5 ± 2.5	0.956	
		During	5.14 ± 2.35	5.64 ± 2.6	0.934	
		After	3.61 ± 1.73	3.80 ± 1.7	0.978	
3	Kaleidoscope	Before	6.5 ± 2.4	6.5 ± 2.4	0.981	
		During	6.04 ± 2.4	6.4 ± 2.3	0.983	
		After	4.61 ± 2.45	4.73 ± 2.5	0.976	

Note: Statistically significant **p<0.001

Correlation (r=0.8 to 0.9 at p<0.001) from the above table indicates that,

Table 4.11

Correlation between investigator pain scores with Child pain experience

Null Hypothesis (H_{05}): There will be a no correlation between investigator and child pain scores.

n=60

S. No	Variables	Duration	M ±SD		r value	p value
			Investigator Pain score	Child pain score		
1	Cartoon animation	Before	6.1 ± 2.1	6.1 ± 2.1	0.81	** 0.00001
		During	3.56 ± 1.95	1.18 ± 0.5	0.736	*0.00258
		After	1.32 ± 0.77	1.17 ± 0.9	0.761	** 0.0001
2	Music therapy	Before	6.3 ± 2.4	6.5 ± 2.5	0.953	** 0.00001
		During	5.14 ± 2.35	3.8 ± 1.9	0.925	
		After	3.61 ± 1.73	3.86 ± 2.7	0.974	
3	Kaleidoscope	Before	6.5 ± 2.4	6.7 ± 2.6	0.94	
		During	6.04 ± 2.4	4.7 ± 2.7	0.98	
		After	4.61 ± 2.45	4.7 ± 2.7	0.94	

Note: Statistically significant **p<0.001,*p<0.05

Above table shows that there is a positive correlation (r = 0.7 to 0.9 at p<0.001, p<0.05) between the investigator and children's pain perceptions. Hence null hypothesis is rejected and research hypothesis is accepted. Result shows that both the investigator and child pain perceptions are equal on using different pain assessment scales in all three distractive techniques that is cartoon animation, music therapy &

Table 4.12

Correlation between parents pain scores with Children pain experience

Null Hypothesis (H_{05}): There will be a no correlation between parent's and child pain score.

n=60

S. No	Variables	Duration	M ±SD		r value	P value
			Parent's pain score	Child pain score		
1	Cartoon animation	Before	5.9 ± 2.9	6.1 ± 2.1	0.81	** 0.00001
		During	3.2 ± 1.7	1.18 ± 0.5	0.643	*0.05
		After	1.17 ± 0.8	1.17 ± 0.9	0.761	**0.0001
2	Music therapy	Before	6.5 ± 2.5	6.5 ± 2.5	0.961	**0.00001
		During	5.64 ± 2.6	3.8 ± 1.9	0.819	
		After	3.80 ± 1.7	3.86 ± 2.7	0.801	
3	Kaleidoscope	Before	6.5 ± 2.4	6.7 ± 2.6	0.982	
		During	6.4 ± 2.3	4.7 ± 2.7	0.979	
		After	4.73 ± 2.5	4.7 ± 2.7	0.994	

Note: Statistically significant **p<0.001,*p<0.05

Above table shows that there is a positive correlation (r= 0.7 to 0.9 at p<0.001,p<0.05) between parents and children pain perceptions. Hence null hypothesis is rejected and research hypothesis is accepted. Result shows that both the parents and child pain perception equal with different pain assessment scale at all three different distractive technique.

CHAPTER V

RESULTS AND DISCUSSION

This chapter deals with the discussion of the study findings and the results. The discussion brings the right report to closure. This is the most important section of any research report. Incision and operative pain will persist for hours to days depending on the type and location of surgery. Complete freedom from pain is not possible. Several research studies have demonstrated that children who had negative experiences with pain involving a routine blood-drawing procedure and frequent change wound dressing exhibited an increase in anxiety and stress and greater pain when faced with the procedure again. Therefore, an effective relief of pain is of supreme importance to children during painful procedure.

The main aim of the study was to assess the effectiveness of cartoon animation, music therapy & kaleidoscope for pain reduction during surgical dressing among children aged 4-12 at PSG hospitals. This chapter deal with the discussion, based on objectives and study findings by relating with the other studies.

5.1 Demographic profile of the post-operative children

The present study reveals that the age of selected children ranges from 4-12 years. Out of 60 children, 35(58.3%) were males and 25(41.7%) were females. In a similar study conducted on IV placement, out of 20 children 12(60%) were male and 8(40%) were female who are under 4-12 year age group **(Gold JI et al., 2006)**

Considering the developmental age of children in this study, 39(65%) children were school age and 21(35%) were preschool age. In a similar study conducted in children with burn at Nationwide Children's Hospital in Colombus, Ohio, 85(100%) children were in pre-school. (**Mark DW and Brendak W, 2009)**

5.2 Clinical profile of the post-operative children

Regarding the type of surgery in this study, 35(58.3%) children underwent single stage surgery and 25(41.7%) children undergone multi stage surgery. Many studies reveal that 15% of children undergone multi stage surgery. (**Dominic, Andrew 2014)**

The present study shows, 34(56.7%) children on IV pain medication and 26(43.3) children on oral pain medication, in a similar study on burns dressing, 13(85%) children were treated with the standardized analgesic medication. (**Carsok 2002)**

5.3 Compare the mean scores of pain level among three intervention group.

The present study shows that after surgical dressing mean pain values are 1.32 ±0.77, 3.61 ± 1.73 and 4.61 ± 2.45 for the cartoon animation, music therapy and kaleidoscope groups, respectively. The above findings are supported by a similar study on reducing pain associated with immunization. The result shows control group mean pain score 6.1±2.9 at P=0.021, animation DVD group mean pain score 1.3±1.9 at P<0.002 and cared group mean pain score 3.1±2.1 at P<0.001. (**Kimie Tanimot, et al., 2015)**

5.4 Compare the mean scores of pain level among investigator, parents and child pain perception.

The present study pain scores were rated by investigator, parents and child. The result shows after surgical dressing pain level rated by investigator as1.32 ±0.77, 3.61 ± 1.73 and 4.61 ± 2.45; Score assigned by parents 1.17 ± 0.8, 3.80 ± 1.7 and 4.73 ± 2.5; score assigned by children 1.17 ± 0.9,3.86 ± 2.7 and 4.77 ± 2.8 for the cartoon animation, music therapy and kaleidoscope groups, respectively.

The above findings are supported by a similar study to assess the analgesic effect of passive or active distraction during venepuncture. Both mothers and children scored pain level. The result shows, pain level rated by children as 23.04 ± 24.57,

17.39 ±21.36, and 8.91 ±8.65; Pain levels assigned by mothers were 21.30 ±19.9, 23.04 ±18.39, and 12.17 ±12.14 for the Control group, active distraction group, and TV groups, respectively. (**Bellieni CV, et al., 2006**).

5.5 Comparison between cartoon animation, music therapy and kaleidoscope in pain reduction

The present study shows that cartoon animation was very effective in reducing pain in children both during and after surgical dressing than music therapy and kaleidoscope. In result of study was consistence with a similar study to assess the analgesic effective of passive or active distraction during venepuncture. Which shows that TV group were low pain intensity than control group and active distraction group. (**B.Ricci, Morgese, G.Buonocore, 2006)**

The present study shows that cartoon animation was effective therapy for reduction of surgical dressing pain (mean pain score 1.32 ±0.77 at 0.05). The visual distractive technique were highly effective method to diverting away from the painful stimulus. The above findings are supported by a similar study to assess the effectiveness of children watch video games, who treat young Children with burns. The result shows watch video game system (mean pain score 4.1±2.9 at 0.05) they are using is an effective means of diversion therapy.(**Mark DW and Brendak W, 2009**)

5.6 Association of demographic variables of child with the level of pain before surgical dressing

The present study shows there is a significant association found in type of surgery (χ^2= 6.124 at p<0.024) level of pain before surgical dressing. The level of pain intensity was severe in children undergone single stage surgery than multistage surgery.

The present study shows there is a significant association found in age of children (χ^2= 9.23 at p<0.023) level of pain before surgical dressing, in a similar study on assess the pain level during venepuncture on association shows there is a

significant association found in age (χ^2= 12.04) of child was significant with level of pain. (**Bellieni CV, et al., 2006).**

The present study shows there is no significant association found in gender of children (χ^2= 2.10 at p<0.18) level of pain before surgical dressing, in a contrast study on assess the pain level during venepuncture on association shows there is a significant association found in age (χ^2= 23.25 at p<0.001) of child was significant with level of pain.(**Gabrielle Pag M,Joel Katz, et al., 2012).**

5.7Correlation between investigator, parent and child pain perception

The present study, shows positive correlation between investigator, parents and child pain perception with various pain scale (r=0.7 to 0.9). In a similar study conducted to evaluate the validity and reliability of FLACC and visual analogue scale, the pain perception was equal between child and parent (r = 0.6 to 0.9). (**Malviya S.Vopel, et al., 2006)**

In this present study parent and child pain perception shows good correlation with Wong Baker pain scale & numerical pain scale (r=0.7 to 0.9 at p<0.001). In a similar study conducted to evaluate the validity and reliability of verbal rating scale and numerical pain scale, the pain perception was high correlation (r = 0.70 at p<0.001). (**Gabrielle Pag M,Joel Katz, et al., 2012)**

CHAPTER VI

SUMMARY AND CONCLUSION

This study was conducted to compare the effectiveness of cartoon animation, music therapy and kaleidoscope on pain reduction during surgical dressing.

Literature was reviewed regarding the diversion therapy which has been used successfully as an intervention to decrease children's pain and behavioural responses during painful procedures.The theoretical explanation for the effectiveness of distraction lies in its ability to divert attention away from the painful stimulus. (McCaul and Malott, 1984).

The study was conducted in pediatric surgical ward, special ward, semiprivate ward, day care centre and paediatric surgery OPD at PSG Hospitals, Peelamedu, Coimbatore, 60 children were selected for the study, out of which 20 children were in cartoon animation group, 20 children were in music therapy group and 20 children were in kaleidoscope group by using purposive sampling technique.

Validity and reliability of the tool was tested through pilot study, keeping the objectives in mind. The instrument and tool consists demographical data, clinical profile and observe the pain level at before, during and after surgical dressing and its outcome was measured with FLAAC pain scale by investigator, Wong Baker scale by parents and Numerical pain scale by children.

First, the pain level was assessed by investigator, parent and child at 5 mins before the surgical dressing. Intervention (Cartoon animation/ music therapy/ kaleidoscope) was given during surgical dressing and the pain level was assessed every 5 mins by investigator, parent and child. After the surgical dressing, pain level was assessed every 10 mins interval till 30 mins. The same procedure was followed at every surgical dressing of the child till the discharge.

Collected data was tabulated and analysed by using descriptive and analytical statistics. One way ANOVA test was used to compare the effectiveness of cartoon animation, music therapy and kaleidoscope for pain reduction during surgical dressing. Chi square formula was used to find out the association between demographic variables with level of pain for before surgical dressing.

6.1 Major findings of the study:

1. Among 60 samples, less than half of children 25(41.7%) belongs to 4-6 years.

2. Most of the 39(65%) children were school age and 21(35%) were preschool age group.

3. Most of the children were male 35(58.3%) compared to female children 25(41.7%).

4. Under the stage of surgery, More than half of children 35(58%) had undergone single stage surgery than multi stage surgery 25(41.7%) and less than half of children 26 (43.33%) underwent genitourinary surgeries.

5. Regarding pharmacological pain management, around34(56.7%)of children were on I.V pain medication and 26(43.3%) on oral medication.

6. Regarding pain level in cartoon animation group, before surgical dressing, among 20 children most of children 13(65%) had moderate pain. After surgical dressing, majority of children 19(95%) had only mild pain. In music therapy group, before surgical dressing, half of children 10(50%) had moderate pain and after surgical dressing, 11(55%) children had moderate pain. In Kaleidoscope group, before surgical dressing, half of children 10(50%) had moderate pain and after surgical dressing, 10(50%) children had mild pain.

7. Cartoon animation was very effective in reducing pain in children both during and after surgical dressing (Mean pain value=1.18, ±0.5, F=8.48 at $p<0.05$), (Mean pain value=1.17, ±0.9, F=12.2 at $p<0.05$) in comparison with music therapy and kaleidoscope.

8. Regarding association, there is a significant association found in age, developmental age and stage surgery (χ^2= 6.124 at p<0.024,9.28 at p<0.02 and 5.84 at p<0.02) level of pain before surgical dressing.The severe level of pain experienced by preschool children under 4 to 6 years.The level of pain intensity was severe in children undergone single stage surgery than multistage surgery and there is a significant association between overall pain in after surgical dressing and demographical variables, such as developmental age of child and type of surgery (χ^2= 8.99 at p<0.01 & χ^2= 43.07 at p<0.01). The level of pain intensity was mild in children under school age and who undergo genitourinary surgeries.

9. According to correlation, pain perception by investigator, parent and children shows positive correlation (r =0.7 to 0.9 at p < 0.001).

6.2 Conclusion:

This study highlights the distractive techniques used in the pain reduction during surgical dressing. Modern medical science to treat the pain is too expensive and its medication has complications. Thus, the non-pharmacological pain management is simple, easily applicable, less expensive and easy to divert the mind from pain stimuli.

This study review shows that cartoon animation is one of the most effective methods for the pain reduction during surgical dressing. This result can potentially be employed as non-pharmacologic therapy in the management of pain.

6.3 Nursing implications:

The present study has implication for nursing practice, nursing education, nursing administration and nursing research.

6.3.1 Nursing practice:

- Distractive technique can be adapted to the procedure of surgical dressing.
- The staff nurses in the hospital settings can implement the practice ofdistractive technique of surgical dressing.
- The finding can be implemented to evidence based nursing practice.

6.3.2 Nursing education:

- Cartoon animation, music therapy and kaleidoscope distractive methods can be included curriculum on reduction of level of pain on surgical dressing.
- The practice of distractive technique can be taught about nursing students and staff nurses on pain management.

6.3.3 Nursing Administration:

- Policies and protocol prepare about pain management include distractive methods.
- Nursing administrators can motivate nurses to use distractive technique in their clinical practice.
- TV facilities can be provide in the surgery units and treatment room to watch cartoon animation.

6.3.4 Nursing research:

- Nurse researchers can conduct studies to verify the scientific principle and physiology behind the effect of divert the mind on pain reduction by distractive technique.
- Survey research can be conduct about satisfaction of nurses and parents regarding distractive technique on pain reduction.

6.4 Limitations:

- Findings cannot be generalized to all population due to small sample size.
- Effect of diversion therapy was not assessed without pharmacological therapy.

6.5 Recommendations:

- A similar study can be replicated with a large sample size.
- A similar study can be performed to reduce negative reaction of all hospitalized children.
- A similar study can be tried with other non-pharmacological therapy.
- Staff nurses in the post-operative wards can be recommended to use diversion therapy to reduce the pain during surgical dressing.
- Television can be used as a diversion in paediatric surgical ward.

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ANNEXURE-I

PSG HOSPITALS
AVINASHI ROAD • PEELAMEDU • COIMBATORE 641 004. INDIA

Phone : 91-422-2570170 (6 Lines) & 2598822
Fax : 91-422-2594400
E-mail : psghospitals@yahoo.co.in

20/01/16

TO WHOM SO EVER IT MAY CONCERN

This is to certify that Mrs. Muthu Guruvu, studying M.Sc., Nursing at PSG College of Nursing has been trained in assessing the pain scale named FLACC scale – pain assessment tool and is considered eligible to assess the same scale in a clinical setup.

Thanking you.

Dr.Pavai Arunachalam MS MCh.,
Professor and Head of Department of Paediatric surgery
PSG Hospitals (affliated to PSGIMS&R) Coimbatore-641004
Ph No: 91-422-2572121- Extension 5151 Mobile 9894769919
E mail pavai4321@yahoo.com

Dr. A. Pavai, M.S.M.Ch.
Reg. No: 30983
Prof... Surgery
Dep... ...tore.
PSG...

ANNEXURE-II

PERMISSION LETTER

From

Mrs. Muthguruvu. P,
I Year M. Sc Nursing,
PSG College of Nursing,
Peelamedu,
Coimbatore - 4

To

Dr. Pavai Arunachalam, MCH.
Consultant, Paediatric Surgeon
PSG Hospitals,
Coimbatore - 4

Through : The Principal, PSG College of Nursing

6/2/15

Respected Madam,

Sub: Seeking permission to carry out the study in PSG Hospitals, Coimbatore.

I Mrs. Muthguruvu. P, I year M.Sc. Nursing student is interested in doing this study. "**A Study to assess the Effectiveness of Cartoon Animation Vs Music Therapy and Kaleidoscope for Pain Reduction during Surgical Dressing among 4 – 12 years Children in PSG Hospitals at Coimbatore**". Kindly grant me permission to carry out the study.

Thanking You,

Date: 06/02/15
Place: COIMBATORE.

Yours sincerely

P. Muthguruvu

Mrs. Muthguruvu. P,
I year M.Sc Nursing.

Signature of HOD:

Dr. A. Pavai, M.S.M.Ch.,
Reg. No: 36983
Professor & HOD
Dept. of Paediatric Surgery
PSG Hospitals, Coimbatore.

ANNEXURE-III

PSG Institute of Medical Sciences & Research

Institutional Human Ethics Committee

Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)

POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA

Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

To
Mrs Muthuguruvu P
I M Sc Nursing
PSG College of Nursing
Coimbatore

Ref: Project No.15/84

Date: March 27, 2015

Dear Mrs Muthuguruvu,

Institutional Human Ethics Committee, PSG IMS&R reviewed and discussed your application dated 17.02.2015 to conduct the research study entitled *"A comparative study to assess the effectiveness of cartoon animation Vs music therapy and kaleidoscope on pain reduction during surgical dressing among 4 - 12 years of children in PSG Hospital at Coimbatore"* during the IHEC meeting held on 13.03.2015.

The following documents were reviewed and approved:

1. Project Submission form
2. Study protocol
3. Assent form (ver 1.1)
4. Parental consent form (ver 1.1)
5. Data collection tool
6. Permission letter from concerned Head of the Department
7. Current CVs of Principal investigator, Co-investigator
8. Budget

The following members of the Institutional Human Ethics Committee (IHEC) were present at the meeting held on 13.03.2015 at IHEC Secretariat, PSG IMS & R between 10.00 am and 11.00 am:

Sl. No.	Name of the Member of IHEC	Qualification	Area of Expertise	Gender	Affiliation to the Institution Yes/No	Present at the meeting Yes/No
1	Dr. P. Sathyan (Chairperson, IHEC)	DO, DNB	Clinician (Ophthalmology)	Male	No	Yes
2	Dr. S. Bhuvaneshwari (Member-Secretary, IHEC)	MD	Clinical Pharmacology	Female	Yes	Yes
3	Dr. S.Shanthakumari	MD	Pathology, Ethicist	Female	Yes	Yes
4	Dr Sudha Ramalingam	MD	Epidemiologist Alt. Member - Secretary	Female	Yes	Yes
5	Dr. D. Vijaya	M Sc, Ph D	Basic Medical Sciences (Biochemistry)	Female	Yes	Yes

The study is approved in its presented form. The decision was arrived at through consensus. Neither PI nor any of proposed study team members were present during the decision making of the IHEC. The IHEC functions in accordance with the ICH-GCP/ICMR/Schedule Y guidelines. The approval is valid until one year from the date of sanction. You may make a written request for renewal / extension of the validity, along with the submission of status report as decided by the IHEC.

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee
Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

Following points must be noted:

1. IHEC should be informed of the date of initiation of the study
2. Status report of the study should be submitted to the IHEC every 12 months
3. PI and other investigators should co-operate fully with IHEC, who will monitor the trial from time to time
4. At the time of PI's retirement/intention to leave the institute, study responsibility should be transferred to a colleague after obtaining clearance from HOD, Status report, including accounts details should be submitted to IHEC and extramural sponsors
5. In case of any new information or any SAE, which could affect any study, must be informed to IHEC and sponsors. The PI should report SAEs occurred for IHEC approved studies within 7 days of the occurrence of the SAE. If the SAE is 'Death', the IHEC Secretariat will receive the SAE reporting form within 24 hours of the occurrence
6. In the event of any protocol amendments, IHEC must be informed and the amendments should be highlighted in clear terms as follows:
   a. The exact alteration/amendment should be specified and indicated where the amendment occurred in the original project. (Page no. Clause no. etc.)
   b. Alteration in the budgetary status should be clearly indicated and the revised budget form should be submitted
   c. If the amendments require a change in the consent form, the copy of revised Consent Form should be submitted to Ethics Committee for approval
   d. If the amendment demands a re-look at the toxicity or side effects to patients, the same should be documented
   e. If there are any amendments in the trial design, these must be incorporated in the protocol, and other study documents. These revised documents should be submitted for approval of the IHEC and only then can they be implemented
   f. Any deviation-Violation/waiver in the protocol must be informed to the IHEC within the stipulated period for review
7. Final report along with summary of findings and presentations/publications if any on closure of the study should be submitted to IHEC

Kindly note this approval is subject to ratification in the forthcoming full board review meeting of the IHEC.

Thanking You,

Yours Sincerely,

SECRETARY
PSG IMS&R
COIMBATORE-641004.
INSTITUTIONAL HUMAN ETHICS COMMITTEE

27.3

Dr S Bhuvaneshwari
Member - Secretary
Institutional Human Ethics Committee

ANNEXURE-IV

SOP 03-V 3.1 / ANX 09-V 2.0

Institutional Human Ethics Committee
PSG Institute of Medical Sciences and Research, Coimbatore
Assent to be in a Research Study
For children between 7-18 years old

We want to tell you about something we are doing called a research study. A research study is "A comparative study to assess the effectiveness of cartoon animation Vs music therapy & kaleidoscope on pain reduction during surgical dressing among 4-12 years of children in PSG.hospital at Coimbatore".

The objectives of this study are:

- Primary Objective: Assess the level of pain among 4-12 years children during surgical dressing.
- Secondary Objective: To compare the effectiveness of cartoon animation Vs music therapy & kaleidoscope on pain reduction during surgical dressing.

Intervention: During surgical dressing show the cartoon animation or provide music therapy or give kaleidoscope for pain reduction among children. Assess the pain level pre and post intervention.

Sample size: 60

Study volunteers / participants are (specify population group & age group): Children who are undergoing surgical dressing.

Location: pediatrics surgical ward, OPD, private &semiprivate ward in PSG hospital, Coimbatore

Benefits from this study: Cartoon animation, music therapy, kaleidoscope are used to reduce the pain level during surgical dressing among children.

Risks involved by participating in this study: there is no risk.
Why are we meeting with you?

I am doing a research study with cartoon animation, music therapy & Kaleidoscope which is used to reduce the pain level of children during surgical dressing. So, i have come to meet you today to analyse the same. After i tell you about this study, i will ask if you'd like to be in this study or not.

Why are we doing this study?

We want to find out whether the use of cartoon animation, Music therapy & Kaleidoscope are reducing the pain level in children during surgical dressing
So we are getting information from lots of boys and girls like you.

In the whole study, there will be about 60 children.

What will happen to you if you are in this study?

If you agree to participate in this study,

1. I will make you to watch a cartoon animation (or)
2. Will play Music ((Music therapy) (or)
3. Will show you the Kaleidoscope during your surgical dressing

Then, the pain level of you will be detected by your expression

Will this study hurt?

No. this study will not hurt you in anyway

Will you get better if you are in this study?

No, this study won't make you feel better or get well. But i will might find out something that will help other children like you later.

Will everybody come to know about my condition? (Confidentiality)

We will not tell other people that you are in this research and we won't share information about you to anyone who does not work in the research study

Is this bad or dangerous for me? (Risks involved)

No. There is no risk in this study

Do I get anything for being in the research?

No.

Will you tell me the results?

The findings of this research will be shared with you.

Do you have any questions?

You can ask questions any time. You can ask now. You can ask later. You can talk to me or you can talk to someone else.

Do you have to be in this study?

No, you don't. No one will force you if you don't want to do this. If you don't want to be in this study, just tell us. Or if you do want to be in the study, tell us that. And, remember, you can say yes now and change your mind later. It's up to you. *This will not affect in any way your future treatment in this hospital.*

Who can I talk to or ask questions to?

You can talk to me anytime in this Number +80124 38747

If you don't want to be in this study, just tell us. If you want to be in this study, just tell us. This will not affect in any way your future treatment in this hospital.

I will give you a copy of this form to keep.

SIGNATURE OF PERSON CONDUCTING ASSENT DISCUSSION

I have explained the study to _____(*print name of child here*) in language he/she can understand, and the child has agreed to be in the study.

_____ _____
Signature of Person Conducting Assent Discussion Date

_____P.Muthuguruvu_____
Name of Person Conducting Assent Discussion (*print*)

Part 2: Certificate of Assent

I have read this information (or had the information read to me) I have had my questions answered and know that I can ask questions later if I have them.
I agree to take part in the research.

OR

do not wish to take part in the research and I have not signed the assent below._____
(initialed by child/minor)
Only if child assents:

Print name of child _____
Signature of child: _____

Date:_____
day/month/year

If illiterate:
A literate witness must sign (if possible, this person should be selected by the participant, not be a parent, and should have no connection to the research team). Participants who are illiterate should include their thumb print as well. I have witnessed the accurate reading of the assent form to the child, and the individual has had
the opportunity to ask questions. I confirm that the individual has given consent freely.

*Print name of witness (not a parent)*_____ *AND Thumb print of participant*

Signature of witness _____
Date _____
Day/month/year

I have accurately read or witnessed the accurate reading of the assent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given assent freely.
Print name of researcher_____

Contact no-principal investigator no:8012438747
IHEC NO: 0422 2570170 Extn:5818

SOP 03-V 3.1 / ANX 10-V 3.0
Institutional Human Ethics Committee
PSG Institute of Medical Sciences and Research, Coimbatore
Parental Consent Form

Title of Study: "A comparative study to assess the effectiveness of cartoon animation Vs music therapy & kaleidoscope on pain reduction during surgical dressing among 4-12 years of children in PSG.hospital at Coimbatore**"**.

Name of the Principal Investigator:P.Muthuguruvu.

Department: Child health nursing.

Your (son/daughter/child/infant/adolescent youth) is invited to participate in a study of "A comparative study to assess the effectiveness of cartoon animation Vs music therapy & kaleidoscope on pain reduction during surgical dressing among 4-12 years of children in PSG.hospital at Coimbator**".**My name is P.Muthuguruvu_and I am a M.Sc Nursing 1st year,Child Health Nursing department in College of nursing at PSG Institute of Medical Sciences and Research, Coimbatore. I am asking for permission to include your (son/daughter/child/infant/adolescent youth) in this study because I expect to have …… (Number) participants in the study.If you allow your child to participate, Any information that is obtained in connection with this study and that can be identified with your (son/daughter/child/infant/adolescent youth) will remain confidential and will be disclosed only with your permission. His or her responses will not be linked to his or her name or your name in any written or verbal report of this research project. Your decision to allow your (son/daughter/child/infant/adolescent youth) to participate will not affect your or his or her present or future relationship with PSGIMS&R or PSG Hospitals .If you have any questions about the study, please ask me. If you have any questions later, call me at 8012438747 .You may keep a copy of this consent form. You are making a decision about allowing your (son/daughter/child/infant/adolescent youth) to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. If you later decide that you wish to withdraw your permission for your (son/daughter/child/infant/adolescent youth) to participate in the study, simply tell me. You may discontinue his or her participation at any time. *This will not affect in any way yourfuture treatment in this hospital.*

Printed Name of (son/daughter/child/infant/adolescent youth)

Signature of Parent(s) or Legal Guardian with Date Signature of Investigator with / Date

Contact no-principal investigator no:8012438747
IHEC NO:0422 2570170 Extn:5818

ANNEXURE-V

§¿¡Â¡Ç¢¸Ç¢ý ´ôÒ¾ø ÀÊÅõ

§¾¾¢ :

ÓòÐÌÕ× .¦À, ¬¸¢Â ¿¡ý, À¢. ±Š. ƒ¢. ÁÕòÐÅì ¸øæÃ¢Â¢ý, ¦ºÅ¢Ä¢Â÷ Ð¨ÈÂ¢ý ¸£ú, **"¦À¡õ¨ÁôÀ¼õ, À¡ðÎÁüÚõ ¦¸Ä¢§¼¡Š§¸¡ô ¦¸¡ÎòÐ ÌÆó¨¾¸ÙìÌ «Ú¨Å º¢¸¢ï¨º ¸¡Âò¾¢ý ÁÕóÐÁ¡üÚõ §À¡Ð §Å¾¨É¨Â Ì¨ÈôÀÐ ÌÈ¢ò¾ ¬ö×"** ±ýÈ ¾¨ÄôÀ¢ø ¬ö× §Áü¦¸¡ûÇ ¯û§Çý.

±ÉÐ ¬ö× ÅÆ¢¸¡ðÊ: **¼¡ì¼÷. ÁÄ÷Å¢Æ¢,** ÌÆó¨¾¸û ¿Ä ¦ºÅ¢Ä¢Â÷ Ð¨È.

¬ö× §Áü¦¸¡ûÅ¾ü¸¡É «ÊôÀ¨¼:

ÌÆó¨¾¸ÙìÌ ÁüÈÅ÷¸¨Ç Å¢¼ §Å¾¨É¨Â ¾¡í¸¢ ¦¸¡ûÙõ ¾¢Èý Ì¨È×. «Ú¨Å º¢¸ ¢î¨º ¸¡Âò¾¢ý ÁÕó¨¾ Á¡üÚõ §À¡Ð §Å¾¨É «¾¢¸Á¡¸ þÕìÌõ. ±É§Å ÌÆó¨¾Â¢ý ÁÉ¿¢¨Ä¨Â §Å¾¨ÉÂ¢Ä¢ÕóÐ «¸üÚÅ¾ý ãÄõ §Å¾¨ÉÂ¢ý «Ç¨Å Ì¨Èì¸Ä¡õ.

¬öÅ¢ý §¿¡ì¸õ:
¦À¡õ¨Á À¼õ, À¡ðÎÁüÚõ ¦¸Ä¢§¼¡Š§¸¡ô ãÄõ «Ú¨Å º¢¸¢ï¨º ¸¡Âò¾¢ý ÁÕóÐÁ¡üÚõ §À¡Ð §Å¾¨É¨Â Ì¨Èì¸ §ÅñÎõ.

¬öÅ¢øÀíÌ ¦ÀÚõ ¿À÷¸Ç¢ý ±ñ½¢ï¨¸: 60

¬ö× §Áü¦¸¡ûÙõ Þ¼õ: À¢. ±Š. ƒ¢. ÁÕòÐÅÁ¨É, §¸¡ÂõÒòà÷.

¬öÅ¢ýÀÄý¸û:
¦À¡õ¨Á À¼õ, À¡ðÎÁüÚõ¦¸Ä¢§¼¡Š§¸¡ô ÌÆó¨¾Â¢ý ÁÉ¿¢¨Ä¨Â §Å¾¨ÉÂ¢Ä ¢ÕóÐ Á¡üÈ¢ §Å¾¨ÉÂ¢ý «Ç¨Å Ì¨ÈìÌõ.

¬öÅ¢É¡ø ²üÀÎõ «¦ºª¸Ã¢Âí¸û / Àì¸ Å¢¨Ç×¸û:Àì¸ Å¢¨Ç×¸û ±Ð×õþø¨Ä.

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7 Ó¾ø 18 ÅÂ¾¢üÌ ¯ðÀð¼ ÌÆó¨¾¸Ùì¸¡ÉÐ

¿¡ý ±³¼ü¸¡¸ ¯í¸¨Ç ¸¡½ ÅóÐû§Çý?

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þó¾ ¬ö× ÀíÌ Å¸¢ôÀ¾ý ãÄõ ¿£í¸û «Ú¨Å º¢¸¢î¨º ÁÕóÐÁ¡üÚõ §À¡Ð §Å¾¨É Ì¨ÈÅ¨¾ ¯½ÃÄ¡õ.

±ø§Ä¡Õì Ì õ ±ý ¿¢¨Ä ÀüÈ¢ ¦¾Ã¢Â ÅÕÁ¡? (¿õÀ¸ò¾ý¨Á)

¿£í¸û þó¾ ¬öÅ¢øÀí§¸üÀ¨¾ ¿¡í¸ûÁüÈÅ÷¸ÙìÌò ¦¾Ã¢Å¢ì¸ Á¡ð§¼¡õ. ¯í¸¨ÇôÀüÈ¢Â ¾¸Åø¸¨Ç ¬öÅ¢ø ºõÀó¾ô À¼¡¾ ¿À÷¸ÙìÌò ¦¾Ã¢Å¢ì¸ Á¡ð§¼¡õ.

þó¾ ¬ö× ±ÉìÌ ¾£¨Á «øÄÐ ¬Àò¾¡É¾¡¸ «¨ÁÔÁ¡?

þø¨Ä, þó¾ ¬öÅ¢É¡ø ¯í¸ÙìÌ ±ó¾ ¬ÀòÐõ «øÄÐ ¾£¨ÁÔõ §¿Ã¡Ð.

¿£í¸û ±ÉìÌ þó¾ ¬öÅ¢ý ÓÊ×¸¨Çò ¦¾Ã¢Å¢ôÀ£÷¸Ç¡?

¿£í¸ûÅ¢ÕôÀô Àð¼¡ø, þó¾ ¬öÅ¢ý ÓÊ×¸û ¯í¸ÙìÌò ¦¾Ã¢Âô ÀÎò¾ôÀÎõ.

±í¸Ç¢ý ºó§¾¸í¸Ùì¸¡É §¸ûÅ¢¸¨Ç ¯í¸Ç¢¼õ §¸ð¸Ä¡Á¡?

¾¡Ã¡ÇÁ¡¸ §¸ð¸Ä¡õ, ¿£í¸û ±ýÉ¢¼§Á¡ «øÄÐ ¬öÅ¢ø ¯ûÇÁüÈÅ÷¸Ç
¢¼§Á¡ ±ô¦À¡ØÐ §ÅñÎÁ¡É¡Öõ §¸ð¸Ä¡õ.

þó¾ ¬öÅ¢ø ¿£í¸ûÀí§¸ü¸ §ÅñÎÁ¡?

þø¨Ä. þ¾¢ø Àí§¸ü¸¡¾¾¡ø ¯í¸¨Ç Â¡Õõ ±Ð×õ ¦ºöÂô§À¡Å¾¢ø¨Ä. ¯í¸ÙìÌÅ ¢ÕôÀõþø¨Ä ±ýÈ¡ø ±í¸Ç¢¼õ ¦¾Ã¢Å¢ì¸Ä¡õ. ¿£í¸ûÀí§¸ü¸ Å¢ÕõÀ¢É¡Öõ ±í¸Ç¢¼õ ¦¾Ã¢Å¢ì¸Ä¡õ. ¿£í¸ûþô¦À¡ØÐ ´òÐì ¦¸¡ñÎÀ¢ýÉ÷ ÁÉõ Á¡È¢ ¬öÅ¢Ä¢ÕóÐ Å ¢ÄÌÅ¾¡É¡ø Å¢Ä¸Ä¡õ ±ýÀ¨¾Ôõ ÁÉ¾¢ø ¦¸¡ûÇ×õ. þÐ ¿£í¸ûÀ¢ü¸¡Äò¾¢ø ÁÕòÐÅÁ¨ÉÂ¢ø ¦ÀÚõ º¢¸¢î¨ºÂ ±ó¾ Å¢¾ò¾¢Öõ À¡¾¢ì¸¡Ð ±ýÀ¨¾Ôõ ¿¡í¸û ¯í¸ÙìÌò ¦¾Ã¢Å¢òÐì ¦¸¡ûÇÅ¢ÕõÒ¸¢§È¡õ.

¿¡ý Â¡Ã¢¼õ §À° «øÄÐ °ó§¾¸õ §¸ð¸ ÓÊÔõ?

¯í¸ÙìÌ ¬öÅ¢ø ²§¾Ûõ §¸ûÅ¢¸û þÕó¾¡ø ±ý¨É §¸Ùí¸û. þó¾ ¬ö× ¦¾¡¼÷À¡¸ ¯í¸û (Á¸ý / Á¸û / ÌÆó¨¾¸û) ÀüÈ¢ ±ó¾ §¸ûÅ¢¸û «øÄÐ ¸Å¨Ä¸û þÕó¾¡ø ±ý¨É «¨Æì¸×õ (8012438747).

þó¾ ¬ö× ÀÊÅò¾¢ý ´Õ ¿¸¨Ä ¿¡í¸û ¯í¸Ç¢¼õ ¨ÅòÐì¦¸¡ûÇ ¾Õ¸¢§È¡õ

´ôÒ³ø ¸ÄóÐ¨ÃÂ¡¼ø ¿¼ò¾¢Â ¿ÀÃ¢ý ¨¸¦Â¡ôÀõ

¿¡ý _____ ±ýÛõ ÌÆó¨¾ìÌô ÒÃ¢Ôõ ¦Á¡Æ¢Â¢ø þó¾ ¬öÅ ¢¨ÉôÀüÈ¢ Å¢ÅÃ¢òÐû§Çý. ÌÆó¨¾ þó¾ ¬öÅ¢øÀíÌ ¦ÀÈ ´ôÒì ¦¸¡ñÎûÇÐ.

¸ÄóÐ¨ÃÂ¡¼ø ¦ºö¾Å÷ ¨¸¦Â¡ôÀõ _____ §¾¾¢

¸ÄóÐ¨ÃÂ¡¼ø ¦ºö¾Å÷ ¦ÀÂ÷ _____

¬öÅ¡ÇÃ¢ý ¦¾¡¨Ä§À°¢ ±ñ: 8012438747
ÁÉ¢¾ ¦¿È¢Ó¨Èì ÌØ «ÖÅÄ¸ò¾¢ý ¦¾¡¨Ä§À°¢ ±ñ: 0422 2570170 Extn.: 5818

À¡¸õ 2-´ôÒ¾ø º¡ýÈ¢¾ú

¿¡ý þó¾ ¾¸Å¨Äô ÀÊòÐò ¦¾Ã¢óÐ ¦¸¡ñ§¼ý (ÀÊòÐò ¦¾Ã¢Å¢ì¸ôÀðÎû§Çý). ±ÉÐ º ó§¾¸í¸¨Çì §¸ðÎ ¦¾Ç¢× ÀÎò¾¢ì ¦¸¡ñ§¼ý. À¢ü¸¡Äò¾¢Öõ ±ÉÐ º ó§¾¸í¸¨Çì §¸ð¸Ä¡õ ±ýÀ¨¾Ôõ «È¢óÐ ¦¸¡ñ§¼ý.

¿¡ý þó¾ ¬öÅ¢øÀíÌ ¦ÀÈ Å¢ÕõÒ¸¢§Èý
(«øÄÐ)
±ÉìÌ þó¾ ¬öÅ¢øÀí§¸ü¸ Å¢ÕôÀõþø¨Ä, ¿¡ý ¸£ú ¸ñ¼ ´ôÒ¾ø ÀÊÅò¾¢ø ¨¸¦ÂØò¾ ¢¼Å¢ø¨Ä _____ (ÌÆó¨¾Â¢ý ¨¸¦Â¡ôÀõ)

ÌÆó¨¾ ´ôÒì¦¸¡ñ¼¡ø ÁðÎõ

1. ÌÆó¨¾Â¢ý ¦ÀÂ÷
2. ÌÆó¨¾Â¢ý ¨¸¦Â¡ôÀõ
3. §¾¾¢

ÀÊôÀÈ¢Å¢øÄ¡¾Å÷¸Ç¡¸ þÕó¾¡ø

´Õ ÀÊò¾ º¡ðº¢ (ÌÆó¨¾Â¢ý ¦Àü§È¡ÃøÄ¡¾, Àí§¸üÀÅÃ¡ø §¾÷ó¦¾Îì¸ôÀð¼ ´Õ ¿À÷) ¨¸¦Â¡ôÀÁ¼§ÅñÎõ. ÀÊôÀÈ¢Å¢øÄ¡¾Å÷ ¾í¸û ¨¸¿¡ð¨¼ô À¾¢ì¸§ÅñÎõ. ÌÆó¨¾Â¢¼õ ´ôÒ¾ø ¦ÀÚõ ¦À¡ØÐ þó¾ô ÀÊÅõÀÊì¸ô Àð¼¨¾ ¿¡ý ¯¼É¢ÕóÐ ¸ÅÉ ¢ò§¾ý. Àí§¸üÀ¡Ç÷ ¾ÉÐ º ó§¾¸í¸¨Çì §¸ðÎ ¦¾Ã¢óÐ ¦¸¡ûÇ Å¡öôÀÇ¢ì¸ôÀð¼Ð ±ýÀ¨¾ «È¢óÐ ¦¸¡ñ§¼ý. Àí§¸üÀ¡Ç÷ ¾ÉÐ ´ôÒ¾¨Ä ¾ÉÐ ¦º¡ó¾ Å¢ÕôÀò¾¢ø ¾¡ý ¦¾Ã¢Å¢ò¾¡÷ ±ýÚ ¯Ú¾¢ÂÇ¢ì¸¢§Èý.

º¡ðº¢Â¢ý ¦ÀÂ÷ _____ Àí§¸üÀÅÃ¢ý ¨¸¿¡ðÎ

º¡ðº¢Â¢ý ¨¸¦ÂØòÐ _____

§¾¾¢ _____

¿¡ý Àí§¸üÀ¡ÇÕìÌ ´ôÒ¾ø ÀÊÅò¨¾ ÓØÅÐõÀÊòÐì ¸¡ðÊ§Éý / ÀÊòÐì ¸¡ðÊÂ¨¾ ¸ÅÉ ¢ò§¾ý. Àí§¸üÀ¡Ç÷ ¾ÉÐ º ó§¾¸í¸¨Çì §¸ðÎ ¦¾Ã¢óÐ ¦¸¡ûÇ Å¡öôÀÇ¢ì¸ôÀð¼Ð ±ýÀ¨¾ «È¢óÐ ¦¸¡ñ§¼ý. Àí§¸üÀ¡Ç÷ ¾ÉÐ ´ôÒ¾¨Ä ¾ÉÐ ¦º¡ó¾ Å¢ÕôÀò¾¢ø ¾¡ý ¦¾Ã¢Å¢ò¾¡÷ ±ýÚ ¯Ú¾¢ÂÇ¢ì¸¢§Èý.

¬öÅ¡ÇÃ¢ý ¦ÀÂ÷ _____

¦ÀüS§È¡Ã¢ý ´ôÒ¾ø ÀÊÅõ

ÓòÐÌÕ× .¦À¸ ¬¸¢Â ¿¡ý, À¢. ±Š. ƒ¢. ÁÕòÐÅì ¸øæÃ¢Â¢ý, ¦º Å¢Ä¢Â÷ Ð¨ÈÂ¢ý ¸£ú, **“¦À¡õ¨ÁôÀ¼õ, À¡ðÎÁüÚõ ¦¸Ä¢§¼¡Š§¸¡ô ¦¸¡ÎòÐ ÌÆó¨¾¸ÙìÌ «Ú¨Å**

ºÇ¸Ç¡¯º ¸¡Âò¾¢ý ÁÕóÐÁ¡üÚõ §À¡Ð §Å¾¨É¨Â Ì¨ÈôÀÐ ÌÈ¢ò¾ ¬ö×” ±ýÈ ¾¨ÄôÀ¢ø ¬ö× §Áü¦¸¡ûÇ ¯û§Çý.

´ôÒ¾ø ÀÊÅõ:

¯í¸ûÁ¸ý / Á¸û «øÄÐ ÌÆó¨¾¨Â ±ÉÐ ¬öÅ¢ø"¦À¡õ¨ÁôÀ¼õ, À¡ðÎÁüÚõ ¦¸Ä ¢§¼¡Š§¸¡ô ¦¸¡ÎòÐ ÌÆó¨¾¸ÙìÌ «Ú¨Å º¢¸¢î¨º ¸¡Âò¾¢ý ÁÕóÐÁ¡üÚõ §À¡Ð §Å¾¨É¨Â Ì¨ÈôÀÐ ÌÈ¢ò¾ ¬ö×" ¯ðÀÎò¾ ´ôÒ¾ø §ÅñÎ¾ø. ±ÉÐ ¬ö×ìÌ 60 ÌÆó¨¾¸û §ÅñÎõ ±É§Å ¯õì¸ÇÐ ÌÆó¨¾ ¬öÅ¢ø ¯ðÀÎò¾ôÀð¼¡ø «Ð ºõÁó¾Á¡É ±ó¾ ÌÈ¢ôÒ¸Ùõ ¯í¸ÇÐ «ÛÁ¾¢Â¢ýÈ¢ ¦ÅÇ¢Â¢¼ôÀ¼¡Ð. ¯í¸ÇÐ ÌÆó¨¾Â¢ý ¦ÀÂ§Ã¡ ÁüÈÅ ¢ÅÃí¸§Ç¡ þÃ¸º¢ÂÁ¡ ¸¡ì¸ôÀÎõ. ¯í¸ÇÐ ÌÆó¨¾Â¢ý ±¾¢÷¸¡Ä ÁÕòÐÅ º¢¸¢î¨º ±ó¾ Å¢¾¾ò¢Öõ À¡¾¢ì¸ôÀ¼¡Ð. ¿£í¸û ±ó¾ §¿Ãò¾¢Öõ 8012438747 ±ýÈ ±ñ¨½ ¦¾¡¼÷Ò ¦¸¡ñÎ ¯í¸ÇÐ ºó§¾¸í¸¨Ç ¦¾Ç¢×ôÀÎò¾¢ì¦¸¡ûÇÄ¡õ. ¸£ú ¯ûÇ ¯í¸ÇÐ ¨¸¦Â¡ôÀõ ¯í¸ÇÐ þó¾ ¬ö×ì¸É ´ôÒ¾¨Ä ÌÈ¢ìÌõ. À¢ýÉ÷ Å¢ÕôÀõþø¨Ä¦ÂýÈ¡Öõ ¾¡Ã¡ÇÁ¡¸ ±í¸¨Ç «Û¸Ä¡õ.

ÌÆó¨¾Â¢ý ¦ÀÂ÷:

¦Àü§È¡Ã¢ý ¨¸¦Â¡ôÀõ:
§¾¾¢:

¬öÅ¡ÇÃ¢ý ¦¾¡¨Ä§À°¢ ±ñ: 8012438747
ÁÉ¢¾ ¦¿È¢Ó¨Èì ÌØ «ÖÅÄ¸ò¾¢ý ¦¾¡¨Ä§À°¢ ±ñ: 0422 2570170 Extn.: 5818

ANNEXURE-VI

TOOL AND INSTRUMENTS

I. Section A- demographic data

II. Section B- clinical profile

III. Section C- investigator to use FLACC pain scale and numerical pain scale to assess the pain level

IV. Section D -Parents to use Wong bakes scale to assess the child pain level

V. Section E- Children to use numerical pain scale to assess the pain level

SECTION – A

Demographic Data:

1. Sample:
2. Gender:
3. Chronological age:
4. Developmental age:
5. Order of the family:
6. Educational status:
7. Income:
8. Address:
9. Previous hospitalization:
10. How to you spend your leisure time?
11. What programme do you like to see in TV?
12. Do you watch cartoon?
13. Among these which is your favorite item?
    i. Cartoon animation
    ii. Music
    iii. Kaleidoscope

SECTION – B

Clinical Profile

1. Diagnosis:
2. Name of the surgery:
3. Date of surgery:
4. Postoperative day:
5. Site of surgery:
6. Single stage surgical repair:
7. Multistage surgical repair:
8. Number of dressing changing: Day/ Week

9. Pain medication:

Dose	Frequenc y	Route

SECTION- C

FLACC SCALE -- PAIN ASSESSMENT TOOL (4-7 year children)-Observer Rated Pain Scale

FLACC Pain assessment scale	Before 5 Min. of surgical dressing	During surgical dressing		After surgical dressing		
		5 Min.	10 Min	10 Min.	20 Min.	30 Min.
FACE 0-No particular expression or Smile 1-Occasional grimace or frown, withdrawn, disinterested 2-Frequent to constant quivering chin , clenched jaw						
LEGS 0-Normal position or relaxed 1-uneasy, restless, tense 2-Kicking, or legs drawn up						
ACTIVITY 0 - Lying quietly, normal position, moves easily 1 – Squirming, shifting back and forth, tense 2 – Arched, rigid or jerking						
CRY 0 – No cry (awake or asleep) 1 – Moans or whimpers; occasional complaint 2 – Crying steadily, screams or sobs, frequent complaints						
CONSOLABILITY 0 – Content, relaxed 1 – Reassured by occasional touching, hugging or being talked to, distractible 2 – Difficult to console or comfort						
Total score						

Face, Legs, Activity, Cry and Consolability scale or **FLACC scale** is a measurement used to assess pain for children between the ages of 4 years and 7 years or individuals that are unable to communicate their pain. The scale is scored in a range of 0-10.

INTERPRETATION

- No pain – 0
- Mild pain – 1 to 3
- Moderate pain – 4 to 6
- Severe pain – 7 to 10

SECTION – D

Pain assessed by Parents

Instruction:

According to your child facial expression you should give the score for pain before, during and after surgical dressing .

WONG BAKER SCALE

Day/ Date	Time	Pain score					
		Surgical dressing					
		Before	During		After		
			5 Min.	10 Min.	10 Min.	20 Min.	30 Min.
1							
2							
3							
4							
5							
6							

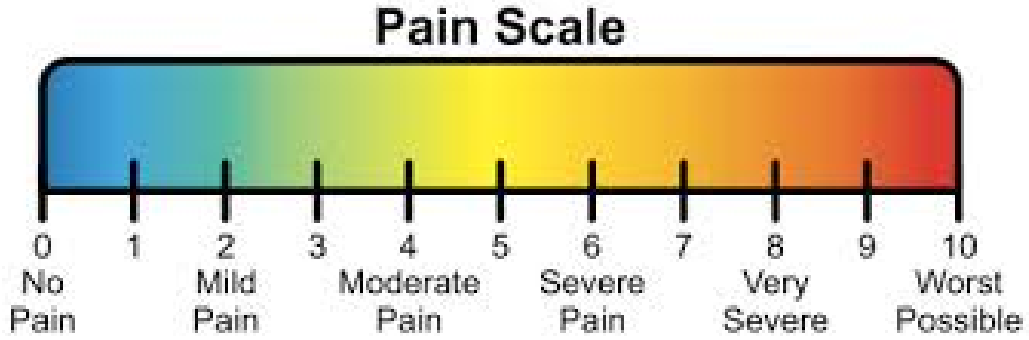
- No pain – 0
- Mild pain – 1 to 3
- Moderate pain – 4 to 6
- Severe pain – 7 to 10

SECTION - E

Numerical Pain Assessment Scale by Children

Instruction:

According to the intensity of pain you should give the score.



Day/ Date	Time	Pain score					
		Surgical dressing					
		Before	During		After		
			5 Min.	10 Min.	10 Min.	20 Min.	30 Min.
1							
2							
3							
4							
5							
6							

- No pain – 0
- Mild pain – 1 to 3
- Moderate pain – 4 to 6
- Severe pain – 7 to 10

ANNEXURE-VII

¬ö×ì¸¡É ¯À¸Ã½õ

I.	À¡¸õ «	-	ÌÆó¨¾Â¢ý Å¢ÀÃõ
II.	À¡¸õ ¬	-	§¿¡¨ÂôÀüÈ¢ÂÅ¢Çì¸õ
III.	À¡¸õ þ	-	¬Ã¡öîº¢Â¡Ç÷ FLACC §Å¾¨É «Ä×§¸¡û ÀÂýÀÎòÐ¸¢È¡÷
IV.	À¡¸õ ®	-	¦Àü§È¡÷ Å¡íŠ ¦Àì¸ø «Ç×§¸¡û ÀÂýÀÎòÐ¸¢È¡÷.
V.	À¡¸õ ¯	-	ÌÆó¨¾¸û ±ñ «Ç×§¸¡û ÀÂýÀÎòÐ¸¢È¡÷¸û.

À¡¸õ-«

ÌÆó¨¾Â¢ý Å¢ÀÃõ:

1. Á¡¾¢Ã¢ ±ñ:
2. þÉõ:
3. ÅÂÐ:
4. ÅÇ÷îº¢Â¢ý ¿¢¨Ä:
5. ÌÎõÀò¾¢ø ÌÆó¨¾Â¢ý ±ñ½¢ì¨¸:
6. ÀÊôÒ ¿¢¨Ä:
7. ÅÕÁ¡Éõ:
8. Ó¸ÅÃ¢:
9. ¸¼ó¾ ¸¡Ä ÁÕòÐÅÁ¨ÉÂ¢ý «ÛÀÅõ:
10. ¯í¸û ¶ö× §¿Ãò¨¾ ±ôÀÊ ¦ºÄ× ¦ºö¸¢È£÷¸û?
11. ¦¾¡¨Äì¸¡ðº¢Â¢ø ¯í¸ÙìÌÅ¢ÕôÀÁ¡É ¿¢¸úîº¢ ±Ð?
12. ¦À¡õ¨Áô À¼õ ¸¡ñÀ£÷¸Ç¡?
13. ¸£§Æ ¯ûÇÅüÈ¢ø ¯í¸ÙìÌ À¢Êò¾Ð ±Ð?
    a. ¦À¡õ¨ÁôÀ¼õ
    b. À¡ðÎ §¸ðÀÐ
    c. ¦¸Ä¢§¼¡Š§¸¡ô

À¡¸õ-¬

§¿¡¨ÂôÀüÈ¢ÂÅ¢Çì¸õ

1. §¿¡Â¢ý ¦ÀÂ÷:
2. «Ú¨Å º¢¸¢î¨ºÂ¢ý ¦ÀÂ÷:
3. «Ú¨Å º¢¸¢î¨º ¦ºö¾ §¾¾¢:
4. «Ú¨Å º¢¸¢î¨ºìÌÀ¢ýÒ ¾ü§À¡¨¾Â ¿¡û:
5. Ó¾ø ÀÊ «Ú¨Å º¢¸¢î¨º

6. ÀÄÀÊ «Ú¨Å º¢¸¢î¨º
7. ¸¡Âò¾¢ý ÁÕóÐ Á¡üÈ¢Â¾¢ý ±ñ½¢ì¨¸: ¿¡û / Å¡Ãõ
8. ÅÄ¢ ÁÕóÐ:

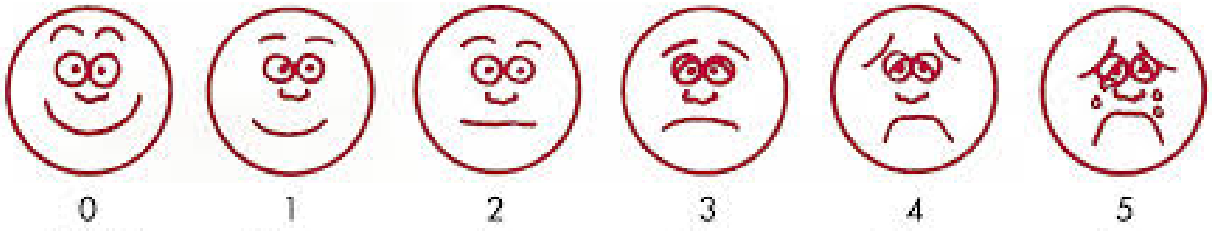
«Ç×	þ¨¼§Å¨Ç	ÅÆ¢

¦ÀüʧÈ¡÷ §Å¾¨É¨Â «ÇÅ¢Î¾ø:

ÌÈ¢ôÒ:

¯í¸û ÌÆó¨¾Â¢ý §Å¾¨É¨Â ÌÆó¨¾Â¢ý Ó¸õ À¡Å¨É¨Â ¨ÅòÐ ÌÈ¢ôÀ¢¼×õ:
«Ç×ìÌ §¿Ã¡¸ (✓) ¦ºöÂ×õ

«Ú¨Å º¢¸¢î¨º ¸¡Âò¾¢ý ÁÕóÐ Á¡üÚÅ¾üÌ ÓýÀ¡¸×õ «¾üÌ À¢ýÒõ þó¾ «Ç×§¸¡Ç¢ø ¯í¸ÇÐ ÌÆó¨¾Â¢ý §Å¾¨É «Ç¨Å ÌÈ¢ôÀ¢¼ §Åñîõ.



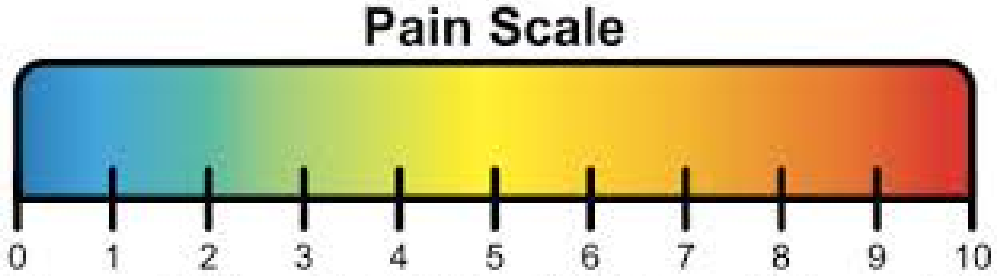
þø¨Ä Ì¨Èó¾ «Ç× ¾¡í¸ÜÊÂ «¾¢¸ «Ç× §Á¡ºÁ¡É Á¢¸×õ §Á¡ºÁ¡É
§Å¾¨É §Å¾¨É §Å¾¨É §Å¾¨É §Å¾¨É

ÌÆé¨¾ §Å¾¨É¨Â «ÇÅ¢Î¾ø:

ÌÈ¢ôÒ:

¯ý §Å¾¨ÉÂ¢ø «Ç¨Å ¿õÀÃ¢ø ÌÈ¢ôÀ¢¼×õ §Å¾¨ÉÂ¢ý «Ç×ìÌ (✓) ¦ºöÂ×õ

«Ú¨Å º¢¸¢î¨º ¸¡Âò¾¢ý ÁÕóÐ Á¡üÚÅ¾üÌ ÓýÀ¡¸×õ «¾üÌ À¢ýÒõ þó¾ «Ç×§¸¡Ç¢ø ¯í¸ÇÐ §Å¾¨ÉÂ¢ý «Ç¨Å ÌÈ¢ôÀ¢¼ §ÅñÎõ.



þø¨Ä	Ì¨Èó¾ «Ç× §Å¾¨É	¾¡í¸ÜÊÂ §Å¾¨É	«¾¢¸ «Ç× §Å¾¨É	§Á¡ºÁ¡É §Å¾¨É	Á¢¸×õ §Á¡ºÁ¡É §Å¾¨É